The Builder.

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London Street Improvements.

THAT street improvements in such an immense and continually increasing city (or district) as London ought to be carried out in conformity with a comprehensive preconceived scheme, seems little more than ordinary common sense. In most of the great cities of the world this has been done more or less; in all of them the necessity of having a general scheme, and making every fresh improvement subservient to it, would probably be fully admitted, in theory at all events. But there seems to be in the English mind, and more especially in the London mind, a kind of inherent indifference to the systematic carrying out of city improvements. Year after year, and decade after decade, we go on, in an aimless kind of way, widening a street in one place, cutting a new one through in another, without regard to any consideration as to how these operations may clash with or assist future possible improvements of the same kind. Everything of the kind is conceived and carried out piecemeal.

This is such an utter and melancholy mistake, that it is to be hoped that some public attention may be attracted to a book* which at least has the merit of insisting strongly on the need of improvement in London, and on the immense advantage—almost necessity—of adopting a broad scheme of improvement and carrying out all the details in subordination to it. With some of Mr. Cawston's suggestions, indeed, we are very much at variance; but the general principle of his book is right.

On another page of this issue we have occasion to refer to a sarcastic article by Mr. Grant Allen in one of the July magazines, on "Beautiful London"; an article which we suggest is rather obtrusively pessimist. There are undeniable beauties in London, as more than one talented artist of the day has frequently reminded us. But they are not mostly beauties of the sumptuous or stately order. Our great buildings that are really impressive as architectural monuments are only three: the Abbey, St. Paul's, and the Houses of Parliament. Even the Abbey is greatly discounted for exterior value by the extent to which it has been restored and modernised (we do not refer to the recent north transept, but to work of earlier and well-meaning restorers); still the interior remains little spoiled, and is better in that way than anything Paris has to show. At South Kensington there is a neighbourhood of palaces springing up, but one can hardly regard them as of equal interest with the three already named, which are our only great buildings in London. The Law Courts, regarded in this light, as a monumental London building, is worse than nowhere; from the first it completely lacked dignity, and grows annually more and more sad and dingy-looking. Just compare this grim-looking prison of a building with such a piece of stately architecture as Duc's Palais de Justice. Compare the National Gallery with the Louvre: the Covent Garden Theatre, facing sideways on a second-rate street, with the Paris Opera House facing down the broad Avenue de l'Opéra; compare the Marble Arch with the Arc de l'Etoile! In making such comparisons one is almost forced to admit the truth of what we read recently in a daily paper—that London is not a "city" at all in the true sense, but a conglomeration of villages. There are points, however, in favour of London scenery which must not be overlooked. The streets, from the independent way in which fronts are built, are far more picturesque than is generally admitted; they have a varied style and skyline which gives them interest and makes them subjects of pictures. Then London is full of quaint out-of-the way courtyards and corners in which the trees harmonise admirably with the quiet brick building of the last century. Nothing can be more charming in their way than some of these old-world corners about the Inns of Court and in the churchyards of City churches, and it is noteworthy how trees are kept up and contrive to flourish somehow even in the most apparently unfavourable situations. The other successful parts of London are the Thames embankment and the new residential brick houses of the west and south-west districts. Against these good points are to be set the narrowness of the streets and sidewalks even in the best neighbourhoods, and the mean character of the approaches from the principal railway stations. This last objectionable feature is not peculiar to London among the great capitals. But the narrowness of the streets and comparatively small size and unimposing aspect of the houses which line them are points very much against us by comparison with Paris. There the general acceptance of the "flat" system of houses has led to the erection of a class of tall and substantial-looking stone buildings everywhere, which, together with the ample width of streets and side-walks, give a palatial air to the principal streets compared with which London has the appearance of a second-class city.

Mr. Cawston commences his work with the statement of various other reasons why improvement is loudly called for in London. The first of these is health. No one, he says, can believe that the London death-rate of 20.3, or the Paris one of 21·6, indicate the ultimate goal of sanitary reform. In indulging the idea of reducing these figures by one half, he points to the Hampstead death-rate of 14·7 and the Artizans' Dwellings Company's of 12·85, and contemplates the time when "our dense and thickly-populated slums can be transformed into broad arteries and lofty blocks of dwellings," concerning which we may merely remark here that the breadth of the arteries must strictly keep proportion with the height of the buildings, a point often practically overlooked. We see at present far too great a tendency to build high blocks of dwellings without sufficiently increasing the width of the streets, which is only over-crowding in another direction. The author, indeed, specially refers to this on another page of his book. The second reason Mr. Cawston urges is congested traffic, and more especially the necessity of providing ample width for tramways, if these are to be introduced side by side with ordinary traffic. A third reason, which we regard with a little suspicion, is that of providing work for the labouring classes. This is a very doubtful argument, in an economic sense, to urge in favour of large undertakings. It is putting the cart before the horse. Mr. Cawston indeed gives a side-blow at the theory of "providing special devices for the employment of the unemployed;" but we are on that track as soon as ever we begin to recommend the

* A Comprehensive Scheme for Street Improvements in London. By Arthur Cawston, A.R.I.B.A. London: Edward Stanford; 1893.

employment of the unemployed as a reason in itself in favour of an undertaking. Under the head of "general benefits" are enumerated the relief of the monotony of the squalid districts of London by breaking through them with large and wide streets and a better class of property; and here we agree with the author entirely. The example which he cites of Shaftesbury Avenue and the Seven Dials neighbourhood is quite to the point. New life and light, physically and morally, are brought into such neighbourhoods by piercing them with wide new streets, and the sooner this can be carried out in further directions the better. This is matter of common talk and common consent; and one kind of benefit to the community cited by the author is not so commonly recognised: viz., the increase of accommodation for the best class of shops. Mr. Cawston urges that the enormous shop rents and consequently high prices in the best quarters of London are largely due to the deficiency of good streets in which such shops can find any desirable and suitable footing. He adduces the example of what followed the making of Queen Victoria-street. Before that "iron-founders, stone-merchants, and wall-paper manufacturers were only to be found in the confined warehouses of Thames-street, for which inconvenient and inaccessible premises fabulous rents were paid. Now, those wholesale traders are accommodated at lower rents in the spacious premises in Queen Victoria-street, which has become the centre of these trades." We presume the author has enquired as to the rents; he does not give any figures. About the accommodation there is no doubt, but we should have liked some statistics about the rents.

These are the reasons adduced for believing that a large scheme of London Improvement is called for and would be attended by the greatest advantages; and these are fortified by examples of what has been done in other large cities—Paris, Vienna, Berlin, Glasgow, and Birmingham. The recital of the systematic method pursued in Paris, where there is an official plan kept up of the whole city and the contemplated improvements, and a standing council of experts at the call of the Prefecture of the Seine to advise upon all architectural questions, is something so far beyond what we have got to or see any prospect of in London that we can only regard it with rather hopeless envy. The indigenous and inborn indifference of all English officialism in regard to architectural effect seems to render it doubtful whether we can ever hope to have this side of the subject systematically considered in London. If we can get a scheme of street lines adopted and worked up to, on the ground of sanitary conditions and convenience of transit, it is to be feared that this is all we can hope until a very great change comes over the English official spirit; and of such change we see no symptom at present. The Imperial Parliament sets so bad an example in this respect that it seems hopeless to expect any better of the Municipal Authority. It may moreover be noted that there seems in general to be the more chance of getting architectural improvement carried out in proportion to the independent or despotic character of the Government. The great improvements in Paris were mostly carried out under the First and Second Empire, and the immense scheme at Vienna was also carried out under a comparatively despotic rule. Republican Paris is only working now on the impulse for improvement started under the Empire, and in part indeed on the very lines laid down by the Imperial Government. The more we verge towards Republicanism, in modern life at least, the more the general tendency seems to be towards merely practical improvements, leaving beauty to take care of itself. Under a Liberal Government, with its rooted ideas of economy and reduction of taxation, it becomes the chief aim that improvements should pay in a practical sense; and those who would look to something higher than this are too small a minority to get a practical hearing. It is said that the better educated of the working classes really care more for nobility of effect in improvements than the middle classes. If it is so, we must look for help from them, as it seems evident that their power in the community is year by year increasing.

The advantages of a comprehensive scheme for London improvement are set forth by the author very well; they are in fact only what would occur to all who understand the subject, but it is so little understood among those who are officially concerned with such schemes that this portion of the work may be strongly recommended to their attention. One most important object is that as each street is laid out, quadrants and *places* should be constructed exactly where future new streets would have to join them. Without a settled plan everything of this kind, if done at all, must be done at haphazard and in the dark, without any certain knowledge whether these features are really in the place where they will in future be required, and whether the cost of making them has not been partially wasted. This is so obvious that it seems extraordinary that it should even be necessary to bring it before people, but it evidently is. Amid all the schemes for improvement that have been talked over and mostly abandoned or procrastinated in the London County Council, we do not remember ever to have heard of a serious proposal to formulate any definite plan of action for London generally. The most extensive schemes discussed have only amounted to the formation of one new line of street in a given quarter, without any consideration as to its relation to future improvements. By the adoption of a comprehensive scheme, again, every small alteration and purchase of property could be regulated in accordance with its ultimate place in the whole scheme. Mr. Cawston deserves our thanks for having so decisively urged this necessary and vital principle in the improvement of a great city.

When we come to the author's proposals, however, we are not able to go with him so completely. His map of proposed new streets is calculated at once to be the despair of the projector and the terror of the ratepayer. London seems to be treated like a cheese which you can cut through at your will in every direction with streets twice or three times as wide as any now existing. As to the abstract question of width we entirely agree with the author. He makes a telling contrast between the widths of the best streets in Paris and those in London; the Avenue de Champs Élysées running for miles with a continuous width of 275 ft., as opposed to our poor 70 ft. or 80 ft. streets. But the mere sight of Mr. Cawston's map of central London as proposed to be laid out is enough to damage the effect of his book, for it is manifestly Utopian at the outset. Imagine (as a very small part of the scheme) the proposal to carry a street nearly twice as wide as Queen Victoria-street diagonally from the east end of the embankment up to the south-west corner of St. Paul's Churchyard, cutting across the premises of the *Times* as well as all the rest of the crowded property in that district. And this is only about one fiftieth part (at a guess) of the streets indicated on this map alone, all (or nearly all), carried over the face of London entirely irrespective of the disposition of the existing streets. If we chose to attempt carrying it out, it would take two centuries to do it; and we cannot make a whole city over again. Nothing but the destruction of central London by a still larger "Great Fire" could render it possible to consider such a scheme seriously. It is a pity that such a map should have been inserted, for a mere glance at it will suffice to make many people inclined to dismiss the author at once as a visionary, and indispose them to consider the really good and useful suggestions of his book. Another proposal which we must condemn utterly is that of opening up the parks, as the author calls it, by driving large carriage avenues all across them in different directions. The author cites Paris as the example for this—the road going through the Champs Elysées, for instance. The Champs Elysées, with the wide central carriage-way and the parterres and plantations on each side, is a gay and brilliant scene in summer no doubt, but the Champs Elysées is not a park in the true sense of the word. The very beauty and advantage of Hyde Park consists in the wide spaces of quiet and undisturbed country, as it may in a sense be called, in the midst of the great city. To turn streams of traffic through it and break up its wide spaces would simply be to spoil it. The proposal is one of the most preposterous we ever heard of in the way of a "London Improvement," and we are surprised that after the unqualified condemnation which it received when proposed in a paper read by Mr. Cawston at the Institute of Architects a little while since, he should not have recognised that such a proposal was likely to do his book more harm than good, and that there is no chance of it ever being listened to. There are other minor points in which we are quite unable to concur with him. We cannot agree in his recommendation to avoid in all cases convex corners to streets. His contention is that it leads to danger by tempting drivers to round the corner at too great a speed. Rounded corners are not very often possible, partly for architectural reasons, but it has been long recognised that they are a practical convenience to traffic—heavy traffic especially, and we do not think the author will succeed in altering the general opinion on this point. We are surprised also to see, in his comparative plans of Trafalgar-square as lately altered and as it might have been, that in the latter he adopts the architectural vandalism which was proposed some time ago, by people with the minds of surveyors rather than architects, of irretrievably spoiling the effect of the portico of St. Martin-in-the-Fields by cutting away the lower steps; a proposal fortunately stopped by the good sense of the Rector, who had it in his power to allow or disallow it. We cannot understand any architect sanctioning or recommending such a proposal.

Among other proposals with which we are more in agreement, is that it should be an object, as soon as possible, to improve the approaches to and the neighbourhood of the great railway stations, the surroundings of which are mostly wretched. We also agree in thinking that new streets should be laid out as straight as possible and of uniform width from end to end. There has been a good deal said in favour of the picturesqueness of winding streets, but however this may be in the case of a country town which has grown up accidentally and by following old boundaries, this kind of picturesqueness cannot be be deliberately cooked up; an effort which always betrays itself. Besides, straight streets are healthier in a crowded city, causing less obstruction to the circulation of air. Something may be said in favour of the occasional design of a street in a regular geometrical curve, which when the roadway is wide and the houses dignified has always a fine effect; but even then there comes in the objection that the healthfulness and planning of the houses is somewhat interfered with. At any rate, a capital city is not the same thing as a country town, and demands a different and more artificial treatment.

Some of the large sketches showing portions of London as proposed are very good. That showing "Lincolns-inn and Fields" we do not quite understand; we presume the Parisian-looking open space without railings, with trees in regular rows, monuments and basin of water and fountain in the centre, is a transformation of the present square garden; are New Square and Old Square to be pulled down? For their site, if we read the drawing right, seems thrown open in the distance. They must come down some day, for the buildings are inconvenient and cramped, yet many would

view the loss of this bit of old London with great regret. We quite agree with the author's idea that in any general scheme of improvement the British Museum should be made a kind of centre of that part of London, and have more space round it and main roads converging on it, not for the sake of access,—the access to it in all directions but one is quite sufficient for practical requirements—but because it is an important and fairly imposing architectural object. All that the author says in regard to the wretched manner in which many public buildings in London are cramped and encroached upon by narrow streets and poor buildings, so that they can never be properly seen, is perfectly true, and the view given (from a photograph) of the court-yard of the Privy Council offices of the United Kingdom of Great Britain and Ireland, with the dust-bin in the centre of the picture, is a pleasant example of the kind of surroundings to be found in the immediate neighbourhood of some of our important official buildings.

The book is admirably got up and printed, and does every credit to the publisher, as well as to the author's sense of the importance of the subject. We hope it will do some good in calling attention to a much neglected and most important subject, and many of the recommendations and suggestions in it are really valuable, although the author's scheme as a whole must be regarded rather as an imagination than a scheme for practical realisation.

LEGAL PRECEDENTS IN RELATION TO BUILDING.

THE above heading expresses the actual object of Mr. Roscoe's useful little book published under the title of "A Digest of Building Cases,"* a third edition of which has just been issued. Part of the usefulness of the book consists in its brevity, a quality which brings with it the subsidiary virtue of cheapness. It is simply a statement of the results of actions in relation to building work, the judgments in which have for the present the effect of defining the state of the law on the points with which the action was concerned. The point of law is stated briefly in large type, so that it can easily be turned to, with a reference to the case which decided it; comments, including a brief statement of the circumstances of the case cited, are added in smaller type. Not a word is wasted, and the book is an admirable small compendium of what the law does and does not allow in regard to the relations of architect, employer, contractor, quantity surveyor, &c. The cases are classified in the index. The only deficiency which strikes our notice is in regard to the case of an architect's claim for payment for plans drawn and not carried out. This is a point on which there have been one or two cases which at least attracted considerable public notice recently (one has cropped up this very week, and is referred to on another page). We presume that these cases ("Burr *v.* Ridout" is one that occurs to us) did not lead up to conclusions sufficiently definite to form distinct precedents. But it is very desirable, especially in view of the extraordinary opinions held by one judge at least on this point, that architects should have a definite idea how far the law will bear them out in asking for payment for the most laborious half of their work, the making of the plans, when the owner has declined to proceed with the other half, the carrying-out of the building.

Perhaps we must wait for further cases before we can get a reliable and complete legal precedent on this head. In the meantime it may be of some interest to mention briefly some of the changes in the law which are of the most professional interest on this particular subject during the last ten years. The process by which English law is largely increased by fragmentary judicial decisions, given at uncertain intervals and enshrined in legal reports, is apt to prevent the due appreciation of the alteration in the form and the substance of the law from year to year.

Let us take, for example, the important question of the architect's certificate: in the case of Richards *v.* May, decided soon after the publication of the second edition, it was decided that when it has been agreed that all extras shall be paid for at a price which shall be fixed by the architect, his certificate is conclusive, not only as to price, but as to the works being extras. We are all aware of the importance of architects' certificates on the rights of the builder, and how impossible it is for the latter to recover payment from an employer without such certificate. But the decision appears to amplify the law, and makes the architect more omnipotent, both in fact and in law, than he was before this decision.

Following up this subject, we find ourselves confronted with Tullis *v.* Jacson, decided so recently as 1892. Here again we find the power of the architect's certificate increased, though, it must be added, entirely by the action of the parties to the contract. If the parties agree that it shall not be set aside on any ground, then, even if fraud on the part of the architect is proved, the certificate is still valid. That such an agreement is very undesirable cannot be doubted; but it is an agreement which is not against public policy, and must be regarded as increasing the force and width of certificates. On the other hand, if the contractor obtains the architect's certificate by fraud, then it is invalidated, or, rather, an action would lie against the contractor to recover any sums paid by the employer in consequence of the giving of such a certificate. In the case of the Mayor of Kingston-upon-Hull *v.* Harding (1892), the contractor by pure deception had obtained certificates, and it was held that they were invalidated by the fraud. Moreover, in this case, sureties had guaranteed the due performance of the contractor's work, and it was further held that certificates obtained by fraud did not discharge the sureties from their liability. In this latter part of the decision we have a distinct amplification of the law so far as it affects certificates, one which is very important and will give additional safeguards to employers against dishonest contractors and builders.

If we leave the architect's certificate and come to the surveyor's quantities, we find an important development in regard to the much-discussed question of the liability of the builder to pay for quantities. In North *v.* Basset it was held that a custom, properly proved, that the builder is liable to pay for quantities, was a valid one. This may be regarded in some respects as the most important case of the decade, since it is one which affects almost every building transaction of any importance. It is a decision which, as we said at the time it was given, simply makes valid a practice which is acted upon every day of the year, which has been regarded by all men of business as one which is both reasonable and convenient. Another question of great interest in regard to quantities arises as to their accuracy. It has been held both in Priestly and Stone and in the quite recent case of Le Lievre *v.* Gould, that a surveyor does not impliedly warrant the accuracy of his quantities. The practical result of this is that a builder cannot sue the employer or the surveyor if he suffers loss through the quantities being inaccurate. This doctrine does not apply to an action by the employer against the surveyor, but the employer does not suffer loss by inaccurate quantities as the builder does. There is no doubt that this state of the law is not satisfactorily, but it is difficult to see how it can be altered, because there is no privity of contract between the builder and the surveyor. There is no doubt that quantities, if taken out with due care, must be accurate: they are not based on opinion or on judgment, but on rule-of-thumb measurement. Be that as it may, during the last ten years the law in this respect has been clearly formulated, and for the present, at any rate, it must be accepted as it stands.

* A Digest of Building Cases relating to the Construction of Buildings, the Liability and Rights of Architects, Surveyors, and Builders in relation thereto. With Notes. By Edward Stanley Roscoe, Barrister-at-law. Third Edition. London: Reeves & Turner. 1893.

NOTES.

THE new fountain at the foot of Shaftesbury-avenue is unquestionably, as might have been expected, a far higher work of art than most of our modern street erections; in fact it stands quite alone among recent works of this kind in London. Nevertheless we must confess to a certain degree of disappointment in regard to it. The outline is rather heavy, and in some of the details the work seems a little too much like a revival not only of the freedom and vigour of Renaissance design, but to some extent of the defects in what one may call the logic of design, which are also characteristic of a good deal of Renaissance art. For instance, the lower jets of water do not emerge from anything which seems designed to spout out water, but slip out in a thin sheet from beneath a little collection of three cherubs' heads thrown together in a knot, and having no relation to the object of the design at this point. The details are rather *rococo* in style and feeling, though redeemed by vigorous modelling. The best bit in the purely decorative portion of the design is the treatment of the exterior of the lower basin, with the small bas-relief figures following the curves of the exterior surface of the basin. The figure poised on tip-toe on the top of the fountain is full of spirit, though it is not very easy to see what is its relation to the object of the fountain or what it is shooting an arrow at, and why. The curled-up fish on the outer sides of the upper basin are very spirited and the whole of this part of the treatment is effective; what we do not like is the heavy and "lumpy" surface of the lower portion of this basin, which suggests nothing in particular and is to our thinking wanting in decision of line. This portion needs to be what we may call a little more "architecturalised," and this is the more apparent by contrast with the admirable architectural character of the lower basin. However, it is a great thing to have a fountain in a prominent position in London which is not feeble or commonplace, and which affords a precedent—we hope to be followed in other instances—for the employment of an eminent artist to produce a design, instead of a trade-pattern casting like some of the new lamp-posts in central positions in the streets. The contrast between the central lamp-post in the triangular space at the top of Shaftesbury-avenue, and the fountain at the bottom, is indeed an instructive one: trade-work at one end of the street, art-work at the other. It is to be hoped the public may learn to appreciate the distinction.

IN glancing over the contents of the new number of the *Bulletin de Correspondance Hellénique* (1893, i.-iv.), we naturally turn first to the news from Delphi. The difficulties that beset the excavations there are perhaps not clearly realised. To evict a whole village of 250 inhabitants is no light matter, and it is not expected that the last remaining hut of Kastri will be pulled down till the end of September. We have already called attention to the discovery of the Treasury of the Athenians—important both for its own architectural interest and in furnishing a fixed topographical point. The *Bulletin* gives some further particulars: The building is about 10 mètres long, it is of Pentelic marble, and executed in a style of remarkable delicacy. Sufficient architectural fragments have been found scattered about not merely to conjecturally restore the Treasury, but almost to rebuild it. Many fragments are preserved of singular freshness and entirety; some

have traces of vivid colouring. Fragments of sculpture probably belong to five metopes; those best preserved represent Athene, Herakles, a Centaur, figures fighting, and animals. Certain figures sculptured on the round seem to have come from pediments. The discovery of these remains is of good augury; they seem to show that the ancient monuments at Delphi have not been to any great extent either carried off piece by piece or thrown down, as some have feared, into the river Pleistos.

CAN no one make it evident to the mind of the Lord Chief Justice of England that an architect's work does not consist only in superintending the erection of a building, but in making out and studying the plans and designs for it, and that the latter is often the most important and laborious portion of the work? One would have hoped that his recent correspondence with the President of the Institute of Architects on the subject would have opened Lord Coleridge's mind a little to the facts; but in trying the case of Farthing *v.* Tomkins, in which the plaintiff claimed 3 per cent. for commission and quantities on a building planned but not carried out, we find the Judge again reciting his former superstition that an architect has done no work unless he has produced a building. It is really too ridiculous that the leading Judge on the Bench cannot be got to understand in what an architect's work consists. We take the following from the *Times* report of the case:—

"Lord Coleridge desired it to be understood that he should not allow the plaintiff to recover for more than work done. He did not understand the claim of commission at 3 per cent. on the 11,800*l.* Such claims had, he said, been set up on former occasions and on the authority of the Institute of Architects, but had never been allowed.

Mr. Witt said the full work had been done—the plans and specifications drawn and the quantities calculated—and it was not the architect's fault that the building could not go on.

Lord Coleridge said the work of the architect for which the commission was to be paid had not been done; the building was never done.

Mr. Dickens said there was a similar case 'Burr *v.* Ridout' (reported in the *Times* February 22 last) in which his Lordship had ruled in the same way.

Lord Coleridge said he should always so hold. The architect in such a case could only recover for work done."

We presume, on the same principle, Lord Coleridge would decree that if a solicitor had drawn up the necessary deeds, say for a large transfer of property, and the intended dealing with the property was afterwards abandoned, the solicitor would have no claim to any fees. That is a strictly parallel case, and we should like to hear what lawyers would say to the proposal to apply the same treatment to them. We have no particular sympathy with the plaintiff in this case; he seems to have gone into a good many matters which were not architecture, and he claimed commission on 11,800*l.* because the builder's estimates had come to that, although he had been instructed to prepare plans for a building to cost 8,000*l.* We have always been of opinion that in such a case, when the building is abandoned, the architect ought not in honour to charge commission on more than the sum he was instructed to spend. But for the highest Judge on the Bench to assert that in such a case an architect has no right to the half-commission on the most important part of the work, which he has already done, affords a most extraordinary instance of the want of logic which occasionally characterises the legal mind. We presume the real explanation is that lawyers, or some of them, cannot understand the nature of an architect's work. In that case they surely ought to take instruction from some one who does understand it. The result of such ruling as this is simply the judicial robbery of the architect.

IT is not at all improbable that we are on the eve of another struggle between the coal-owners and miners, in consequence of the masters having announced that the languid state of trade and falling prices necessitate a reduction of 25 per cent. in wages. Their contention is that they have hitherto borne the brunt of the battle, and that it is now for the men to stand by them and submit to a reduction in order to enable them to carry on business without loss. The Miners' Federation, having recently secured the adhesion of the Northumberland men, will undoubtedly resist the proposal as it stands, and unless a compromise can be effected, another great strike or lock-out appears inevitable. The miners of Northumberland are at the present time receiving some 15 per cent. lower wages than those of the districts which joined the Federation earlier; and it is not unlikely that they will seize the opportunity of endeavouring to improve their position. It is, however, well known that the men in receipt of the lower rate of wages have for some time past had far more work than those who secured the advanced rates—orders being naturally placed where prices have ruled low. The relatively small demand for coal at the present time will be an important factor in determining the course of events. The Federation can do much in the way of controlling wages, but their influence upon the demand for the commodity they supply is limited to the spasmodic and shortlived movements peculiar to a disturbed condition of trade. They will doubtless recognise that the coal-owners are too astute to have suggested a wholesale reduction at a time when the Federation is better organised than it ever was before, unless they felt that they had no option. Meetings are being held all over the country at which the miners in the various districts affected will decide what course to support at the general conference to be held at Birmingham later in the month.

IT is very satisfactory that the County Council have rejected the proposal to spend 750,000*l.* on a site for offices at Westminster. It is to be hoped that the last has been heard of the scheme. But it is by no means to the credit of the Council that it should be necessary for Lord Rosebery to come down and make a long speech against the proposal. It is pretty clear that had it not been for his energetic speech the Council would have adopted the proposed scheme. The mere fact that a powerful Statesman should have to use his personal influence against the proposal shows how little real businesslike capacity exists in the Council. The commonsense of the body should have rejected the proposal in its inception. Moreover it is not a satisfactory symptom that the personal influence of an eminent person can control the Council when their own instincts should have been sufficient. The whole affair, from whatever point of view it may be regarded, is a blow to the character of the Council. They have been saved from a gross blunder, but simply and solely because Lord Rosebery has treated them as a parcel of schoolboys.

WE have received a pamphlet entitled "Strike in the Building Trade," which urges upon employers the need of organisation to counterbalance the combination of workmen. There is no doubt that this is sound advice, because it is certain that in such a trade as that of a builder there are so many masters all over the country in a comparatively isolated position when a strike arises that it is only by previous combination that employers can successfully resist an organised attack. It is equally certain that when strikes take place employers should watch the proceedings of "pickets" with great closeness, and urge on the authorities the necessity for protecting non-union workmen. At present the authorities let the pickets severely alone, and the mere presence of the latter is sufficient to keep away men who do not like to run the gauntlet of a crowd of angry workmen. Some day the question of picketing will have to be reconsidered by the Legislature.

THE Report to the Local Government Board by Dr. W. W. E. Fletcher on the sanitary circumstances of the Risca Urban Sanitary District, seems to point to defective water supply as the worst evil in the district. On this head the report says:—

"Until very recently there was no public water service in the place, and the only available sources of supply were those which I shall presently describe. Lately, however, the Monmouthshire Valleys Water Company has laid mains down some of the roads in Risca, and up to the time of my inspection the company's supply had been laid on to seventy-two dwellings. The sources of supply, which are being superseded by the introduction of the above mains, are of an extremely unsatisfactory character, consisting, as they do, of several sprouts and springs, some of them open to all sorts of contamination. The chief of these appears to be a spout by the 'Long Bridge,' on the confines of Pontymister and Risca. This water is piped from the mountain on the north-east side of the valley. It is bright and clear, and the spout is resorted to by a great number of the inhabitants, some of them resident at a considerable distance. Another supply is provided by a 'spring' in a field near 'the forge.' This spring is merely a shallow hole two yards distant from a brook from which the water in question is most probably derived. About ten yards above the spring, on the opposite side of the brook, is a dilapidated privy abutting on the stream. At the time of my visit the level of the filth in the privy-pit was some inches lower than that of the water in the brook, but only a narrow dam of clay interposed between the contents of the privy and the stream, so that mingling of the water with the privy contents, or overflow of the latter into the brook, might easily take place. . . . . In other instances water is derived from shallow surface wells very imperfectly steined, and so circumstanced that contamination of their water is almost certain. Some of the inhabitants obtain their water from springs in their own gardens. I saw two such "springs," in reality mere shallow holes in the ground. One of these holes, in a garden lately and liberally manured, supplies all the water used in one of the public bakehouses."

Drainage of domestic premises, we are told, hardly exists. Liquid refuse is thrown anywhere and everywhere; into the gardens, into the roads, into middens, and into brooks. In regard to excrement disposal we have the old story; privy pits, the scavenging of which is left to the occupiers, with the usual results in rural districts.

THE Ceylon Official Customs Returns for 1892, which have just been published, show that the value of imports last year amounted to 4,417,968*l.*, and exports to 3,891,997*l.*, making a total of 8,309,965*l.* The returns show that the trade of the Colony has steadily increased since 1885. Among the imports having a special interest for English manufacturers, we may mention the following (the figures showing the value of each class of article imported last year):—Bricks and tiles, 16,948*l.*; cement, 16,000*l.*; furniture, 5,220*l.*; iron (angle, bolt, bar, and rod), 10,479*l.*; iron (galvanized), 18,021*l.*; iron (pig, plate, and sheet), 1,868*l.*; hoop iron, 14,306*l.*; iron tanks, 1,732*l.*; railway materials, 24,788*l.*; steel, 1,241*l.*; tin, spelter and zinc in plates, bars, and slabs, &c., 1,914*l.*

A LAVATORY for use by visitors to the Park is being built near Cumberland Gate, and opposite the corner of Edgware and Bayswater roads. The new structure, which is of stone, is designed after the style of the older park-lodges, having a pediment resting upon four Doric columns. The builders are Messrs. G. H. & A. Bywaters, of King-street, Regent-street, W. Messrs. John Bolding & Sons, of Grosvenor Works, W., will supply the sanitary fittings. This is the most recent change at a corner of London which has seen many changes. Close by where the Marble Arch now stands once stood the old Cumberland Gate, a mean brick arch with side wickets, opened *circa* 1745, which was pulled down in 1822 for the iron gates presented by Mr. H. P. Hope. In 1851 the latter were shifted to stand on either side of the Marble Arch, removed from before Buckingham Palace. The Marble Arch, which is said to have cost 80,000*l.*, and was intended to carry Chantrey's equestrian statue of George IV., now in Trafalgar-square, is an adaptation by

Nash: its sculptured pieces are the work of Flaxman, Rossi, and Westmacott; the gates, of a copper alloy, were designed and cast by Samuel Parker.

WE are not very often in accordance with the Society for the Preservation of Ancient Buildings, but in the matter of the proposed restoration of William of Wykeham's chantry at Winchester we are inclined to think that they are in the right. It is understood that there is a desire to replace the statues, which Bishop Horne removed from their niches, with modern ones. We should be disposed to leave the chantry as it is, and simply preserve it from further injury. The modern statues will not harmonise with the monument.

CONGRESS OF FRENCH ARCHITECTS.

WE give a few notes on some of the visits made by the French architects during the recent Congress, which afford an opportunity for describing one or two buildings of interest.

The first visit, made on Tuesday, June 20, was to the Hôtel des Téléphones in the Rue Guttenberg, a street recently opened between the Rue du Louvre and the Rue Jean Jacques Rousseau, behind the Hôtel des Postes, to which it forms a kind of an annexe.

The building is an odd-looking structure with no pretence to be architecture of a classic character. M. Boussard, the architect, already known for his originality in the design of various private residences, has based his design on the employment of the most economical and most easily utilised materials. Massive piers and an arcade of round arches support two stories of glazed galleries, the iron construction of which, painted light blue, is filled in with enamelled brick, also of a blue tint, but less marked. Prows of ships, in terra cotta, decorate the façade; at the angle of the streets is a circular tower lighted by bays rounded on plan in the lower story and rectangular above. Behind the front block is a garden surrounded by plain brick façades of Flemish aspect, with large bay windows lighting the staircases. The steps of these stairs are of compressed concrete, and carried on brick arches which render them independent of the main construction. There is a certain grandeur and boldness of treatment about this part of the building. The only internal ornament having an artistic character is a fresco decoration in the entrance vestibule, consisting of groups symbolising the employment of the telephone.

The large room of the first floor is lined with panels of enamelled faïence with very original effect, resembling the *revêtements* of walls used in the south of France. The floor is covered with a thick carpet of cork and guttapercha united to form a material which renders the footfall absolutely silent. In the upper story is a large, well-lighted, and airy room, where is placed the apparatus serving for the use of the 6,000 subscribers to the telephone system of Paris, who are divided into groups of not more than eighty in each group. M. Bertrand, the engineer of the system, here gave some interesting explanations on the installation, in which all isolated offices are suppressed. In the basement, built entirely of stone, are the large cables serving for communication between France and foreign countries. It is hoped that the building will be opened in two months. The *employés*, as well as the public, will find a degree of comfort in it which is little known hitherto in the large administrative buildings of France. In particular, M. Boussard has broken through the routine system of warming and ventilation followed in all the recent Government buildings (even in the Hôtel de Ville), and adopted the "aero-calorifère" system, which he considers infinitely superior to either the ordinary warmed air or hot-water system, and which is contrived to give at the same time the requisite degree of moisture to the air.

On June the 21st the Congress visited the Gobelins tapestry works, in the neighbourhood of the Jardin des Plantes, where it occupies an immense range of buildings divided by large silent courtyards. The establishment is so well known to visitors to Paris, however, that it is hardly necessary here to describe it in detail. We may mention, however, that after the fires caused in the Commune insurrection in 1871, which destroyed seventy-six tapestries and ruined many blocks of buildings, there still remained four ateliers, that of the "haute lisse," including eleven separate industries; that of the Savonnerie, that of the "rentraitures" (atelier for repairs), and that of "teintures." Adjoining these technical departments is the museum and the school of design, the former open to the public.

The interior organisation of the manufacture, which is not much known, offers a certain degree of interest. Most of the operatives live on the premises, and each of them has a garden on a large territory of several acres, on the banks of the Bièvre; this collection of gardens forming a charming adjunct to the industrial buildings, leaving an impression on the mind of verdure flowers and sunshine, as if one had paid a visit to the country. The artisans form a large and very united family, devoted to an art which has been handed down and pursued from generation to generation, undisturbed by political and social changes.

Of the ateliers which escaped the destruction of the Commune period, most date from the seventeenth century, and are in a rather dilapidated condition. The atelier de teinture, which is as old as the time of Henri IV., is, in fact, approaching the condition of a "dangerous structure." But though air and light are not very well provided for in these old buildings, they are on the other hand full of picturesque corners, and it is interesting to see still the remains of the atelier of the celebrated painter Lebrun, who lived in a stone parlour surrounded by elms. Past generations seem to revive again among these ancient walls and peaked roofs, stained and browned by time.

On leaving the Gobelins, the members of the Congress went to see the new Mairie of the thirteenth arrondissement in the Place d'Italie, which, though built in 1877, is already inadequate for its requirements, and M. Soudée, the architect, has been commissioned to prepare plans for its enlargement. This mairie contains an important piece of decoration by M. Gustave Boulanger, entitled "Matrimonium," in which are introduced the portrait of a certain number of eminent men—Chas. Garnier, Alexandre Dumas, Cabanel, Arago, and others.

The excursion to Amiens, on Thursday, June 22, was very interesting to those who attended it, but Amiens is so well known to English students of architecture that we need not do more than mention the programme of the day. On arriving at Amiens at 10.30, the excursionists were received by M. Leullier, architect to the corporation of Amiens, who conducted them first to the apprentices' school of the Société Industrielle. The party then proceeded, under the direction of M. Juste-Lisch, to the Cathedral, and afterwards met at the Hôtel Crétaux for lunch, opposite to the Hôtel de Ville, in which, in 1802, was signed the celebrated treaty of peace of Amiens. The members afterwards went to see the Musée de Picardie, a work of the late M. Diet, where they admired the masterly decorations of M. Puvis de Chavannes — "Le Repos," "Le Travail," "Bellum et Concordia," &c. On leaving the Museum the party went to the *chantier* of the Church of St. Rémy, in process of construction under M. Deleforterie, the architect. Various Renaissance houses—that of the "Saggittaire" Rue des Vergeaux, and the half-timber houses of the Rue des Poiries, were also visited, and the last part of the day was passed in the *chantier* of the Church of the Sacré Cœur, in process of construction from the plans of M. Douillet.

This closed the "extra-mural" excursion, which is always one of the features of the Annual Congress.

ROYAL COMMISSION ON METROPOLITAN WATER SUPPLY.*

THE Commission last week devoted a second day to the examination of Mr. Wilson, of the Middlesbrough and Stockton Water Board; and at its conclusion the Chairman said for himself and his colleagues that they were very much obliged to Mr. Wilson for the trouble he had taken and the promptitude he had shown in giving all the information he could. Dr. Barry has also been examined by way of rejoinder to Mr. Wilson and in vindication of his own reports. The Commission wished to ignore the interim report and to deal only with the final report, which is as yet a confidential document, and is not expected to be issued to the public for some time. Mr. Wilson, however, referred on certain points to the interim report, because he said it remained an official document, and it stated much more clearly than did the final report the reasons that brought Dr. Barry to the conclusion that it was the Tees water which produced the epidemic. He added that, so far as he had seen the final report, it did not give any reasons whatever; but in it Dr. Barry dropped the things he considered crucial in his interim report and went into big generalities.

It appears probable (as was indicated in our Notes last month) that, irrespective of the problems raised as to the concurrence of fever with the Tees water supply, much will depend upon the character of the Tees itself, its pollutions, and the general provision for subsidence and filtration; and scattered through Mr. Wilson's evidence there is a good deal of information of a suggestive character, especially when taken in connexion with the ideas that have been evolved as to the importance of effective filtration. Mr. Wilson said,—

According to my theory the river had nothing to do with the outbreak of typhoid fever; that had to do with the local rainfall conditions. There was a rainfall in Stockton which exactly coincided in its date with the batch of cases which resulted from it; there was not that rainfall in Darlington, and therefore it did not get that hold. Over and over again I find that coincidence — excessive rainfall in Middlesbrough and Stockton, followed at a certain interval by a batch of deaths. Going back into the history of Middlesbrough as far as 1868 I find precisely the same thing takes place.

The Chairman: With a candour that does you the greatest possible credit you say, "It can hardly be said to have had any culmination at all in Darlington, probably, as may be suggested, because the Darlington Corporation had ceased to pump water during flood time in the river." Do you know when they ceased to pump it?—I am not sure; I know that they so altered their engines and their pipes that they are now able to cease pumping water in flood times, and therefore they save their filters a very great deal. Exactly what time that took place I do not know, but the arrangement is that they keep a reserve reservoir with about one and a-half to two days' supply, and they bring that back to the pumps and re-pump it.

Did it take it December, 1890?—I do not know the date; but I know that they do not pump now in dirty weather—when the river is turbid.

Carry your mind back, please, to the autumn of 1890. What storage capacity had you then in days' supply; how many days' supply could you store?—Above the filters or below the filters?

Either above or below—first one and then the other?—At the works we will have 12,000,000 galls. of storage; at the different service reservoirs, 37,000,000; I think it is altogether 49,000,000.

How many days' supply is that?—That would be about five days'.

In 1890, do you mean?—Yes; we are precisely the same as we have been for the last eight or nine years. There is no alteration. It would be that if it was all filled.

At what rate did you filter the water?—At the average rate of five inches an hour. Take it in this way. Our average weekly pumping may be taken at 63,000,000; the daily, at 9,000,000; and the hourly, at 375,000 galls. Then the area of the filter-bed is 142,100 ft., and if we divide the 375,000 galls. by the 142,100 ft. of filter-beds, that gives 2·64 galls. per foot of filter and 2·64 galls. is ·42 of a cubic foot, or 5 in. So that it may be taken at 5 in. in an hour. Of course, when the river is dirty and the river is coming rather muddy, it would not come quite so fast through. Then we make up the average by getting it a little faster through when the water is very clear, but the average rate is 5 in.

What is your storage before filtration?—12,000,000 gallons.

About a day and a half's supply?—About a day and a half's.

Mr. Hill: Twenty-three millions after it has been filtered—is that the storage?—Thirty-seven millions after it has been filtered—if it were full, about that.

So that if the filters do not pass the water through freely enough because it is turbid, you draw then upon the water which has been already filtered?—Draw on the service reservoirs.

Chairman: I suppose with a river running down a valley of the configuration of the Tees Valley, the floods are, you would say, short and heavy, are not they?—Short and heavy.

Now in the absence of floods, at what intervals do you clean your filter-beds?—There is no stated interval. It is governed entirely by the state they happen to be in. If the river has had a long course of clear water they would go for a considerable length of time.

What do you mean by a considerable length of time?—I keep no exact record and I cannot say, but I should think they would very rarely indeed go above two months.

Then if the floods should happen to come in rapid succession they would not go so long, I suppose?—Oh, no. It very frequently happens that the water coming down very thick the filter gets so blocked up that we cannot get the water through it. Then we let it drain away, and we skim off as quickly as we can—take the skim away to a place for washing.

Take the deposit off the top of the filter-bed?—Yes, then get to work as quickly as possible.

How often will you do that in rapid succession?—We have had to do it twice in the course of a single day.

* For reports of previous sittings of the Commission, see the last three volumes of the *Builder*.

That has not often happened?—It is a very rare case when we have had it to do. The demand for water being so heavy and the storage so small, we cannot aford to stand.

Can you say whether you did that at the time of the flood of August, 1890?—I have no recollection whatever whether we did it or not. I have no doubt we should have had the ordinary trouble at that time.

Do you call that ordinary trouble to have to do it twice in a day?—Ordinary trouble with such a flood.

And if floods came in succession in that way, how much do you pare the sand down? First, what is your depth of sand?—Two feet 6 in.

When you put it on fresh?—When the filter is at its full thickness it is 2 ft. 6 in.

How thin would you pare it down?—Under these circumstances the paring is very superficial. That 2 ft. 6 in. would never, under any circumstances, be reduced more than 2 in. When I say 2 in. that is rather an excess, because the paring that we do in the case of a flood is not the ordinary paring, when we take off ¾ in., but just the least skimming.

How much would you say?—The least skimming; we take off under the circumstances as little as we possibly can.

Have you ever tested the water when the filter-bed has been treated in that way to see whether the filtration was effective or not?—Yes. In consequence of something that transpired just about the same time as that visit of Dr. Barry's in 1890, I watched for the water that came down to Middlesbrough after that flood, and I wished to take the very worst sample that I thought I had ever seen, and I sent it to Dr. Frankland for analysis, and his analysis is in Dr. Barry's report.

What made you think it was the worst you had ever seen?—Because it was so brown.

What we call turbid?—No; turbidity and brownness are two totally different things. It may be perfectly clear and yet brown. The brown stain it contracts is, we think, contracted from the heather up in the hills; but we frequently have it perfectly clear, but still brown. On the other hand, we can have perfectly white water, which is still turbid.

I understand you want to give some additional explanation as to what your filter-bed consists of?—Yes. The thickness of sand is 2 ft. 6 in. The whole thickness of the filtering material is 5 ft. 6 in., there being below the sand layers of what we call shot.

Just explain to us what the whole 5 ft. 6 in. consists of.—There are 2 ft. 6 in. of sand below that 6 in. of what we call shot; that is coarse gravel. Then there is another 6 or 9 in. of coarser material again, and then it gets coarser and coarser to the bottom, the shot and coarser gravel measuring altogether 3 ft., and with the 2 ft. 6 in. of sand, making up 5 ft. 6 in. of filtering material altogether.

Is there any other explanation you want to give?—One of the Commissioners asked me what was the acreage of our filters. It is 3·26 acres, and the quantity of water filtered per superficial foot of filter is 2·64 gals. in the twenty-four hours.

What is the total storage in those four subsiding reservoirs?—There can hardly be said to be any storage at all in two of them, because the water enters at one end, passes down, and goes out at the other. We can only draw it down to put on to the filters about 2 ft. deep, and I should suppose about a million and a-half or two million would take all that up.

You call these subsiding tanks?—We call them subsiding tanks; we do not regard them as storage at all. Two, Nos. 13 and 14, between them contain about 12,000,000 gallons.

That is really the only storage that you have above your filters?—Yes.

At Fighting Cocks and Sadberge what is the total amount of storage for filtered water?—24,000,000 als. in rounds numbers.

And what is about the average daily supply?—9,000,000 gals. a day.

So that you may take it that, with storage above filters and storage below filters, you have possibly four days' supply?—Additional to those at Fighting Cocks we have one at Sadberge, which contains a little over 12,000,000. That makes, below the filters, 37,000,000, and above the filters 12,000,000.

Thirty-seven and 12 is 49?—Then say an odd million that we could take in the subsiding tanks would make it, in round numbers, 50,000,000 gals.

And your daily supply?—9,000,000.

That is about 5½ days' storage?—Yes, if we were to start full and to finish with being exhausted.

You gave us yesterday some particulars of the length of the floods; the floods of the Tees rise rapidly and fall very rapidly?—Yes, I gave the biggest instance we have had recently, which was one last September, when the river was about 18 in.—less than 2 ft. at any rate—above its ordinary summer level at nine o'clock on the 1st and by nine o'clock the next morning it had risen to 15 ft. 8 in., and it subsided to its original level in the course of the twenty-four hours.

On an occasion like that do you close your intakes entirely?—We were forced on that particular occasion to do it, because just above us there is a high bank of the river, and there was about half-an-acre of that washed away.

We may take it from you that, as a rule, you do not cease pumping whatever state the river is in?—No. We should only cease pumping if the river is coming down, as it did on that occasion, or on another similar occasion at the beginning of the year, when again a very large part of the river bank was washed away, and the river was filled with mud, rendering the water so dirty that we did not wish to defile the filters more than we could possibly help. Otherwise we would not have stopped.

You may as well explain now that it is intended to erect filters at some other place than Broken Scaur?—Yes. It is the intention of the Board when the gravitation water is brought down, to filter all the water that comes through at some filters to be erected near Lartington.

What becomes of the scrapings from the filters?—They are taken to another part of the works where we have two washers set up on purpose to wash the sand so collected without interfering with the operation of the filter beds.

But when the scrapings have been washed, do you use the material again on the filters?—Yes, we wash it and put it back again.

I know that is the usual practice?—The proper sand for washing is rather difficult to get hold of, and, therefore, we are as careful of it as possible.

I only wanted to know because of the material brought down the river in floods appearing to be so objectionable, whether you use the material again which you get from scraping the filters?—Over and over again we use the same material.

You do?—Yes, we make it last as long as we possibly can; it is difficult to get, and somewhat expensive.

What is your experience as to the condition of the water ten hours after the flood?—As good as ten hours before the flood.

So that you deny, as I understand it, that in even ten hours, far less forty hours after a flood, the river is in such a condition that it is unfit for human use?—I should deny that entirely.

You have no difficulty in treating and filtering the water ten or forty hours after a flood?—Certainly not.

It is during the course of the floods that you have increased difficulties in your filtration as I understood yesterday?—Yes, and then only a very high flood.

And then only a very high and continuous flood, I presume?—Yes, a continuous flood.

I understand you that not more than a tenth of the total filter area is at any one time out of use?—A little more than a tenth.

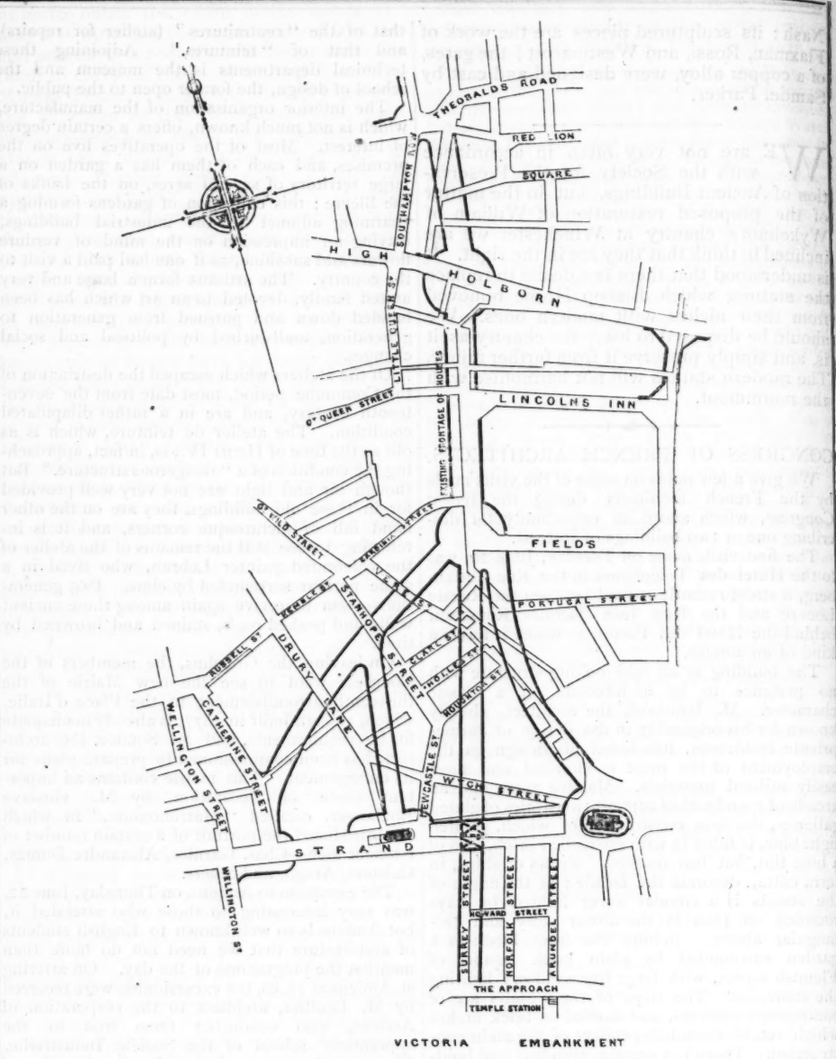
So that in any case there is always three acres in operation?—Yes.

The rate of filtration being about 2·6 gals. per square foot per hour?—Yes.

Are you aware whether or not the system of filtration and subsidence that you adopt there differs materially from any other public work of the same kind?—I believe it is as nearly as possible exactly the same. A great many people come to see our works and our filtering apparatus; they always express themselves extremely satisfied with what they see, and frequently go away and copy them. They are copying them, I believe, at this moment in Hamburg. Mr. Samuelson, the Hamburg Waterworks' engineer, was over and looked at them, and what he intimated to me was that he would as nearly as possible follow the arrangement there.

Do you say that 2 ft. 6 in. of sand is comparable with the thickness of sand, which is used in, say, some of the London Water Companies' filtration?—Yes, some of them may have a little bit more, but I do not think any of them have very much more.

In other words, there is no material difference in the thickness of your filters and the rate of filtration, and that which is in common use, to your knowledge?—Not to my knowledge.



Plan for Street from Holborn to the Strand; by Mr. C. J. Shoppee.

PLAN FOR NEW STREET FROM HOLBORN TO THE STRAND.

THIS is a plan proposed by Mr. C. J. Shoppee as, in his opinion, an improvement on the line proposed by the County Council. The following is the description by the author of this intention in suggesting this plan:—The new street would commence at the end of Theobald's-road, and be continued southwards, 100 ft. wide, to Holborn, with a circus, 250 ft. diameter, at Holborn; thence through Lincoln's-inn Fields to a second circus, with spur streets east and west, 70 ft. wide, one leading to Catherine-street, and one to St. Clement Danes' Church, with a street, 60 ft. wide,

leading directly to the Church of St. Mary-le-Strand.

From the circus in Lincoln's Inn-fields the street would be inclined towards the Strand, 70 ft. wide, and pass under a bridge or viaduct at Surrey-street to the level of the approach to the Victoria Embankment. The bridge or viaduct is denoted on the plan by the dotted diagonal lines. The buildings on the west side of Lincoln's Inn-fields would remain, their fore-courts being added to the new street.

It is proposed to continue the present street on the east side of Lincoln's Inn-fields to Holborn, and to improve the access to Waterloo Bridge by widening a portion of the Strand.

MAGAZINES AND REVIEWS.

The *Art Journal* continues the articles on the Tate collection by Mr. Armstrong, and devotes a short and sympathetic article to "Sir John Gilbert's gift to the City of London." The most interesting article in the number, perhaps, is that by Mr. M. W. Freeman on "A Sea-going Studio," being an illustrated account of the two ships which Mr. Napier Hemy has successively had built to enable him to carry on his sea-studies. The first one, the *Van de Velde*, got ashore and came to grief, and the *Vander-Meer* was specially designed "to combine the speed of a racer and the steadiness of a coal-hulk." This, we gather has been achieved, and the interior of the cabin and studio certainly looks roomy and comfortable, though it makes rather a lump on deck externally. An article on the late Mr. Pettie is accompanied by illustrations of some of his best works, and Mr. Huish contributes a well illustrated article on the oriental art collection of Sir Trevor Lawrence.

In the *Magazine of Art* the New Gallery is criticised by Mr. Wedmore, and the Academy Exhibition by the Editor. Mr. J. E. Hodgson contributes an interesting article on "Sketching from Nature," an article full of good sense lighted up by insight and enthusiasm, and which should be read by all amateur sketchers. "Street balconies in North Italy," by Mr. H. E. Tidmarsh, contains some admirable illustrations drawn by himself, and is of special interest, of course, to architects.

Art does not take much place in the general magazines of this month. "The Arts and Crafts Exhibition at Westminster," in the *Nineteenth Century*, is, as the reader may surmise, political and not artistic. Mr. Taylor's article on "How to Catalogue Books," in the same magazine, may be useful to those who are concerned in the planning of libraries, for one may suppose that the grouping of the books should have some reference to the grouping of the catalogue, and be arranged for accordingly.

Harper contains an article on "Italian gardens" by Mr. C. A. Platt, with illustrations from photographs of some old palatial gardens, some well known, some that are not. In the *Fortnightly* Mr. Grant Allen indulges in a satiric condemnation of the City which he calls ironically "beautiful London," and there is much truth in his remarks, but they are somewhat overdrawn—at least there is much beauty in London which he does not appear to recognise. It is beauty of a small type however, always excepting St. Paul's and the Houses of Parliament; the lack of palatial dignity and stateliness in a city so wealthy is certainly a phenomenon, and it is well that attention should be called to it in this way, though we fear it is hopeless to expect that any steps worth speaking of will ever be taken to improve it in this respect. We live under a legislature which (Liberal and Conservative alike, or nearly so—the Liberals are the worse in this respect) prefers economy to art. Miss F. March-Phillipps's article on the "Progress of Women's Trade Unions" is a serious one, written indeed all on one side, but it is the weak side at present.

In *Scribner*, Mr. W. Hamilton Gibson fairly loses his head, in an article on "Foreground and Vista at the Fair" (Chicago, of course), over the architectural glories of the Exhibition. The American writers seem determined that if we do not admire it enough, it shall not be for want of being told to do so. The "supreme glorification" and "superb achievement" of Chicago "still leaves us the superlative of actual experience"; and so on. The sketches illustrating the article (by the author) are admirable, but the writing is really too much of "tall talk."

The *Century* commences also with a Chicago article, "Colour in the Court of Honour at the Fair," by Mr. Cortisson, written likewise in *couleur de rose* style, and illustrated by a very charming series of engravings of the decorations of the domes of the Manufactures and Liberal Arts building. These are by various artists, but a certain unity of method runs through them, as it should and was probably intended to do. All the painters seem to have adopted the system of emphasising the pendentives of the dome by figure subjects, leaving the hemispherical portion nearly clear, or only very lightly decorated. The arrangement is effective, and there is a fine freedom and variety in the designs. Mr. La Farge contributes "An Artist's Letters from Japan," which is not only interesting in its information, but contains some admirable critical remarks on artistic aims and methods, suggested by the spirit of Japanese art. A fine engraving of Gainsborough's "Mrs. Siddons" forms the frontispiece to the number.

Blackwood contains a short account of a remarkable illuminated book of the Renaissance period, the "Sforza Book of Hours," a fifteenth century book which was offered for sale in 1871 at Madrid, and was purchased by Sir J. C. Robinson, and by him offered to the trustees of the British Museum for 2,500*l*. The Museum had not the funds—"the purse-strings of the nation were then held by a Liberal Chancellor of the Exchequer," and Mr. Malcolm of Poltalloch bought it at a higher price than the Museum had refused, and eventually presented it to the nation. It is described as "illuminated throughout with the richness and beauty which belong to Italian and Flemish specimens of such works at the best periods of those schools. Its pages are adorned with sixty-three full-page illustrations, forty-seven of which are by Milanese artists, and the remainder by equally skilled Flemish painters," besides numerous borders of exquisite design and workmanship. The same number of *Blackwood* contains a short story, "A Tale of Two Studios," turning on an artistic subject.

The third number of the *Pall Mall Magazine* gives it the claim to be the best illustrated English magazine, the only one to compare in this sense with the best American illustrated periodicals. We can only wish that the literary portion were equal in merit and interest to the illustrations. The article on the "Follies of Fashion" reproduces a number of curious and elaborate caricatures of period of high head-dresses. "Deal Beach," by Mr. Sydney Gerald, is a picturesquely-written article in a light style, illustrated by a number of small sketches. Mr. Aubrey Beardsley's curious fancy, "The Kiss of Judas," is remarkably original as a piece of decorative effect in black and white.

In the *English Illustrated* Mr. Harry Quilter writes some very true words about "Art Eternal and Temporary," endeavouring to distinguish between the qualities which give permanent interest and beauty to a work of art, and those which belong only to temporary fancy or fashion. The subject is well worth taking up, and Mr. Quilter has a good deal to say about it which is forcible and to the point. We are specially struck by the remark that "the very fact that certain recent developments of English artists have been received with such vehement applause by the Press critics is the strongest proof of the entirely temporary nature of their appeal." In concluding his article the writer suggests the institution of competitions for great decorative designs in painting and sculpture, the work of the finally successful competitor (after a preliminary competition to justify entry) to be purchased for the nation, and its author to have the right to exhibit for three or more successive years at the Royal Academy. We should be very glad to see some such scheme carried out.

In the *Cornhill* "Nile Notes" gives a sketch of a voyage up the Nile with a good deal of "local colour," and an article on "Texts and Mottoes" inscribed on old buildings is of interest, and gives a curious collection of examples.

The *Newbery House Magazine* includes a short article by Mr. W. Arthur Webb on "St. Mary Overie and its Restoration," with illustrative sketches.

The *Reliquary* contains the continuation of a series of articles by Mr. C. C. Hodges on "The Pre-Conquest Churches of Northumbria," which are very valuable, being the putting on record with pen and pencil of a number of interesting ancient features, some of which have been with difficulty preserved from the hand of the restorer, by an architect who has made a special study of the subject. Among other articles containing a good deal of special information is one by Mr. J. Hunter-Duvar on "The Dawn of Design," illustrated by fac-similes from pre-historic drawings. The subject is one of the most fascinating interest, though of course far too large to be disposed of in a single article.

The *Antiquary* continues "Researches in Crete" and "Archæology in Provincial Museums." Mr. Peacock commences a contribution, to be continued, on "Gainsburgh During the Great Civil War." A correspondence is going on in the columns of the *Antiquary* in regard to "Norman Work in the Triforium of Beverley Minster," on which the Vicar of Beverley writes a long letter, in reply to a letter by Mr. Bilson in the previous number.

ARCHITECTURAL ASSOCIATION SUMMER VISITS:

GREENWICH HOSPITAL.

On Saturday, the 24th ult., a large party of members of the Architectural Association journeyed by boat to visit the famous buildings, now no longer a hospital for aged seamen, but a training school for young naval officers, and more correctly styled "The Royal Naval College." It has probably been forgotten by many who look on the present buildings that they occupy the site of the royal palace built by Humphrey, Duke of Gloucester, and afterwards the birthplace of Henry VIII. and Queens Mary and Elizabeth. The cellars of this old palace partly remain, and were visited by the party, who inspected the red brick vaulting and stone piers. Some doubt appears to exist as to the precise authorship of much of the present buildings. Inigo Jones was employed by Queen Henrietta Maria, but whether he designed more than the building next the Park, now occupied as the Seamen's Orphanage, is open to question. The palace was converted into a seamen's hospital by Queen Mary, to commemorate the battle of La Hogue in 1692, and Sir Christopher Wren was instructed in 1694 to erect further additions, but whether he or his son-in-law, Webb, did so, is questioned. Probably Webb acted as the "ghost," whose real design was supervised and fathered by Sir Christopher. It is manifestly impossible that Wren could personally have designed altogether the many works all over the country with which he is credited, and at the same time devote that attention to his Sovereign which his position as a courtier demanded. The chapel was, we know, remodelled internally, after a fire, by Stuart, the joint author of the "Antiquities of Athens" and other publications of the Dilettanti Society. It is interesting to see the way in which Stuart made use here of the knowledge of Greek detail thus gained, and the satisfactory result obtained. The "Painted Hall" and its pictures, including the decorative designs of Sir James Thornhill, are too well known to need more than a mere mention.

DALY'S THEATRE, LEICESTER-SQUARE.

A large party of members visited this building on Saturday last, but owing to preparations for an afternoon performance being in full career, were unable to see more than the part of the house ordinarily accessible to the public. A description, with illustrations of plan, section, and elevation, appeared in the *Builder* for November 14, 1891. The decorations, therefore, were the chief item of interest, and these have been carried out by Mr. Lock, of Collinson & Lock, and that gentleman met the party and explained various points. The scheme of decoration for the auditorium is conceived in warm rich tones of red and gold, the metallic enrichment being carried out in silver leaf covered with variously tinted lacquers, by which greater depth, warmth, and variety of effect is obtained than by gilding in the ordinary way. The scheme of the principal entrance and *foyer* is rather cooler and lighter in tone, the hall being finished in white with stained mahogany joinery. The modelling throughout is well executed and preserves more of clay technique than is usually seen in plaster decorations.

"THE BIBLE AND CROWN."—It is announced that Mr. Septimus Rivington and Mr. J. G. Percival (a son of the headmaster of Rugby) will continue the publishing firm of Percival & Co., of 34, King-street, Covent Garden, under the new style of Rivington, Percival, & Co. Mr. Rivington was formerly (1867-89) a partner in the late firm of Messrs. Rivington, Waterloo-place. There, on the east-side over the door, is the sign of the "Bible and Crown," with which the name of Rivington has been associated in the publishing trade for nearly two hundred years. At the "Bible and Crown," in Paternoster-row, the Rivingtons continued, with Burke's help, the *Annual Register*, established by Todsley at the "Tully's Head," in Pall Mall, and there, in 1791, they began the *British Critic*. In 1854 their house in "the Row" was converted into a shawl-shop, the firm having removed in the previous year, we believe, to Waterloo-place.

Illustrations.

BATTERSEA TOWN HALL.

WE published the elevation and plan of this building in our issue for December 19, 1891, at the time the competition was decided. The illustration here given is from a perspective view exhibited at the Royal Academy. The exterior of the building is faced with red brick and Monk's Park Bath stone, the whole of the lower story being faced with stone. The roof is covered with green Westmoreland slates, from the Tilberthwaite quarries. The roof-turrets are framed of oak covered with copper.

Internally, the principal staircase will be of marble, with handrails of Devonshire marble and balusters of Devonshire spar. The balustrade, of the same materials, is continued round the gallery which surrounds the staircase.

This gallery has a vaulted ceiling. The public hall and council chamber have decorated plaster ceilings of an arched form. The entrance to the public hall is surmounted by a dome, carried on columns of polished Devonshire marble.

The principal rooms are floored with oak, and the council chamber is panelled with the same material. The entrance-halls and corridors are paved throughout with Rust's glass mosaic.

As before stated, the carving of the figure subjects on the front elevation is by Mr. Paul Montford; the rest of the carving is executed by Mr. Gilbert Seale. Messrs. Shand, Mason, & Co. have done the fire hydrants and fittings; Messrs. Berry & Sons have fitted the heating apparatus; and the principal roofs are constructed of steel by Messrs. Morland & Sons. The builder is Mr. Walter Wallis, of Balham, who has carried out the work very satisfactorily.

The clerk of works is Mr. Isaac Gard, and Mr. Ed. W. Mountford is the architect, who gained the commission as the result of a limited competition.

We may add that in addition to the illustrations already named, we published a view of the principal staircase of the building in our issue for July 9, 1892.

YORKSHIRE COLLEGE: LEEDS SCHOOL OF MEDICINE.

THE new buildings, to serve as the Medical Department of the Yorkshire College, are being erected by the Council of the College on the Mount Pleasant Estate, adjoining the Leeds Infirmary, and are arranged to accommodate 400 students. They supersede the old buildings in Park-street, which have become quite inadequate for the work.

The site is a commanding one of irregular shape, with street frontages on each side, and with rather rapid falls. The buildings now in progress are arranged on three sides only, leaving a large interior court, but allowing of extension on the fourth side when rendered necessary.

A leading requirement in the arrangement of the plans was the localisation of the separate departments. Generally speaking, it may be said that the library and museum departments occupy the southern wing: the administrative department, board-room, common rooms, &c., are in the south-east portion, near the principal entrance. Beneath these are the students' smoke-room and a large dining-room, level with the courtyard, provided with the requisite kitchen and store accommodation. The pathological department (with general lecture theatre for pathology, materia medica, &c.), occupies the north-eastern portion of the ground floor.

The physiology rooms are located in the north wing, and occupy the ground floor and the floor above: while the anatomy department adjoins them on the first floor of the east wing, and has additional rooms on the second floor.

The varying levels of the site admit of the janitor's house in the N.W. corner, with the adjoining rooms, being above the street level, though nominally in the basement; and also allow increased height to the library wing, thus admitting of mezzanine rooms, where work rooms and other accommodations of lesser importance are required.

The principal entrance, in Thoresby Place, which is surmounted by a tower, forming a prominent feature of the building, gives access to the entrance hall. This is a hexagon on plan 25 ft. diameter, with arcaded sides walled in faïence, and provided with a groined oak ceiling. The principal staircase, of stone, 6 ft. wide, is situated at the rear of the hall; and the main corridor, 9 ft. wide, starting from the entrance hall, forms the means of access to the rooms on the north and east sides, with a smaller hexagonal hall, 20 ft. diameter, at the angle, and the students' staircase adjoining with side entrance from Blundell-street.

The library, which is entered from the entrance hall, has an extreme length of 72 ft. 6 in., with a width of 35 ft. 4 in., and a height of 18 ft., with a gallery of light construction carried round it at a height of 10 ft. from the floor. The students' common room, 40 ft. by 20 ft. 3 in.; the students' cloak room, 19 ft. by 15 ft.; the porters' room, and a lift for general purposes, also communicate with the entrance hall, and have a mezzanine stage used as a book store and as cloak room, and latrines for the professors. Access is obtained from the main east corridor at the upper level to the dean's office, 18 ft. 9 in. by 16 ft., with waiting-room; board room and professors' common room, 31 ft. by 18 ft.; general lecture theatre, 32 ft. 6 in. by 26 ft. 3 in.; diagram room, pathologists' private laboratory, 16 ft. 6 in. by 15 ft.; demonstrator's laboratory, 22 ft. 6 in. by 14 ft.; pathological histology laboratory, 43 ft. by 30 ft.; and laboratory for bacteriology, 16 ft. by 13 ft. 6 in.

Opening from the north corridor, and having windows overlooking Blundell-street, are the physi-chemical laboratory, 41 ft. by 31 ft. 3 in., with glass store, private laboratory, opening from same; and a lecture preparation room, 20 ft. 6 in. by 15 ft. 6 in., with additional gallery communicating with the former room by a staircase, and with the physical lecture theatre, a room 39 ft. by 26 ft. 3 in., and 18 ft. high.

On the first floor above these rooms, and with access from same by the private staircase, are the advanced students' room, 30 ft. by 26 ft. 3 in.; optical room; professors' room, 26 ft. 3 in. by 12 ft.; histology preparation room, 20 ft. by 12 ft.; and histological laboratory, 41 ft. by 31 ft. 3 in.

The anatomy department is situated adjoining, on the first floor, shut off by a screen and lobby, and contains a prosector's room, 30 ft. by 13 ft. 6 in., with additional space under staging of theatre. Lecture theatre 43 ft. by 30 ft., and 22 ft. high; large lift communicating with top floor, and also with mortuary, injecting room, macerating room, &c., in basement. Dissecting room, 80 ft. by 36 ft. 9 in, with north roof lighting, separate lavatory and locker room, and a gallery for the exhibition of diagrams, &c. A bone room with large gallery, and with separate entrance from main staircase, is also obtained over the entrance hall and porch; and the remainder of the anatomy department is obtained on the second floor, where the professor's private room is placed, as well as the curator's room, room for demonstrators, and work room.

The museum for pathological specimens is situated over the library. It is of the same size as that room, and also is fitted up with a light gallery. The chief lighting is obtained from the roof, which is opened timbered. The curator's workroom, assistant's workroom, photographic room, preparation room, &c., adjoin the museum, and are also reached from the first floor landing or the gallery of museum.

The students' lavatories and latrines, both for the first and ground floors, are arranged in one block, opening from the north corridor and projecting into the court-yard.

Many of the rooms and laboratories are to be fitted up with working-tables and benches, draught-closets, &c., specially designed by the architect from memoranda supplied by the various professors, and by Mr. Scattergood, the Dean of Medicine.

The contract for the general structural work is being executed by Messrs. W. Wilson & Sons, of Headingley, Leeds, at a cost of 25,060*l.*, and they are also executing the drainage work. The electric lighting is in the hands of Mr. T. Harding Churton, of Leeds.

The ventilation—to which a good deal of attention has been given—is by means of extract trunks, with upper and lower inlets from rooms. These are taken down to trunks below the basement-floor, and the air is propelled up the ventilation shaft of the main chimney by means of a "Guibal" fan. The ventilation arrangements, and also the low pressure steam heating are being carried out by Messrs. F. Ashwell & Co.

J. W. Appleyard, of Leeds, is executing all the carved work, both in wood and stone.

The materials used are local facing bricks, running 11½ in. to the four courses, with dressings of Morley Moor stone. A good deal of glazed brickwork has been used, in the lavatories and latrines, and throughout in the dissecting-room and also as a dado to the principal corridors. The floors of the principle upper rooms, and those of the lecture theatres of ground floor, are of fireproof concrete, and those most constantly in use will have wood block flooring.

The architect is Mr. W. H. Thorp, and the drawing from which the illustration is taken is exihbited at the Royal Academy.

HOUSES, BURNT ASH HILL.

THESE two houses have been built at Burnt Ash Hill, Lee. The woodwork throughout is stained dark brown, and oiled. The walls up to the first floor level are faced with red bricks, the walls to the upper floor being "rough-cast. The roofs are tiled. Messrs. Balaam Bros. were the contractors, and Mr. R. A. Briggs the architect.

HOUSE AT MAIDENHEAD.

THIS house has been built at Maidenhead with considerable alterations from the original design, of which this is a perspective, an entire floor having been added.

The roofs and walls to first floor are hung with tiles, and the walls to the ground floor are faced with red bricks. The woodwork throughout is painted white. Mr. Martin, of Boyne Hill, Maidenhead, was the builder, and Mr. R. A. Briggs the architect.

SCULPTURE.

THE figure called "A Scytheman," by Mr. E. Roscoe Mullins, is the principal work in sculpture in the New Gallery Exhibition; the figure of the "Girl Binding her Hair," by Mr. W. Goscombe John, we have already referred to as perhaps the best modelled full-length figure in the lecture-room.

Both works speak for themselves; they are perfectly unpretending in *motif*, and form good examples of the class of sculpture which derives its interest from the simple representation of life and action, apart from idealism.

ARCHÆOLOGICAL SOCIETIES.

NEWCASTLE SOCIETY OF ANTIQUARIES.—A meeting of the Newcastle Society of Antiquaries was held on the 28th ult., in the Old Castle, Newcastle, Canon Greenwell presiding. Mr. Cadwallader J. Bates gave an account of some excavations recently carried out in connexion with Dr. Hodgkin's excavation found on a section of the vallum of the Roman wall near Heddon-on-the-Wall. The section was cut at the great hill about a quarter of a mile to the east of the village of Heddon. The excavation were made at the point where the wall makes a bend, where some years ago the late Mr. John Clayton had the wall excavated, and where he found a certain round opening in the centre of the wall. During the excavations a bronze axe-head and flint scraper were found. Votes of thanks were passed to gentlemen who had exhibited objects and had assisted in the excavations.

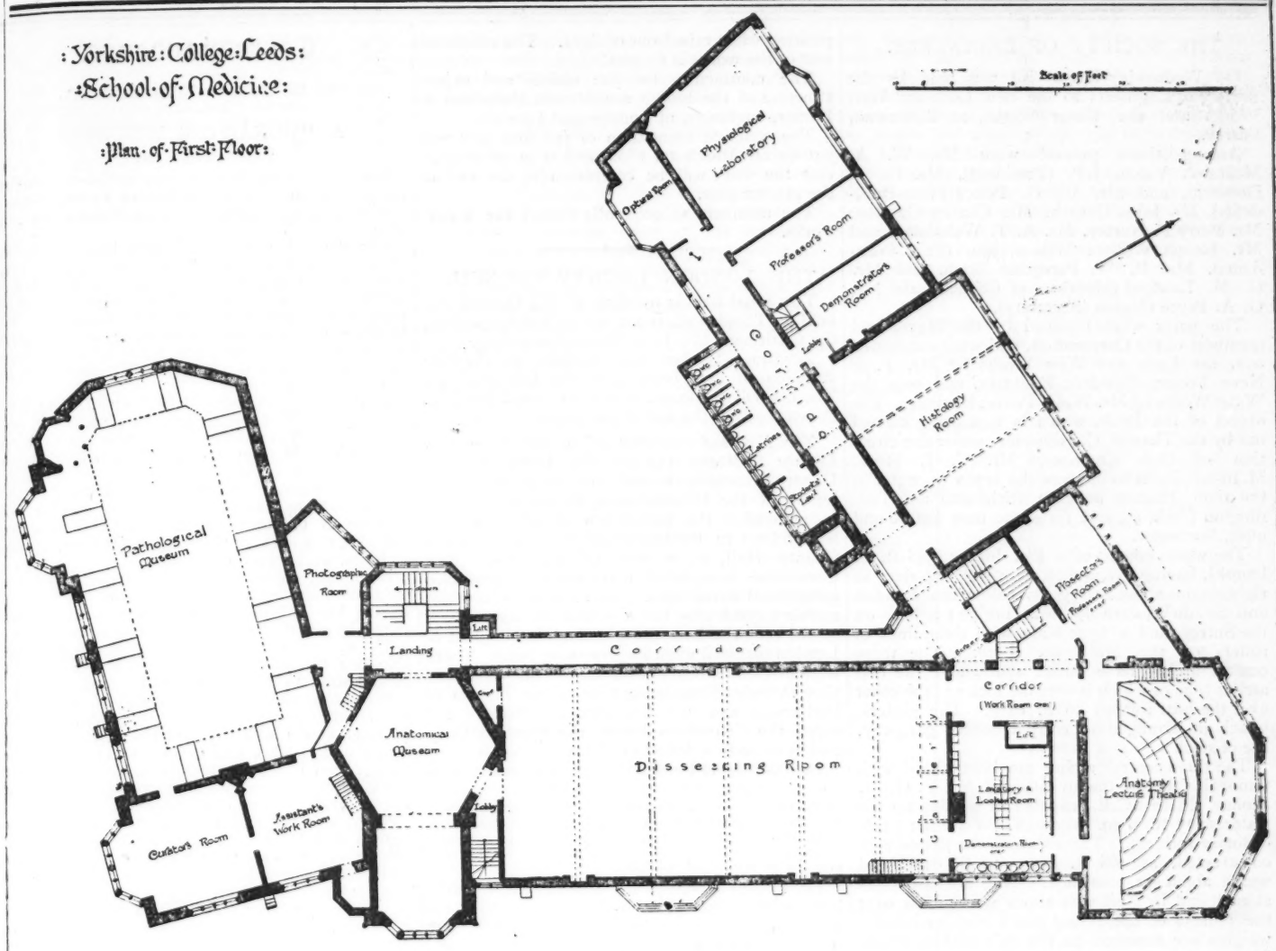
YARMOUTH ARCHÆOLOGISTS IN SUFFOLK.—A party of Yarmouth Archæologists had a tour through a large part of Suffolk on the 22nd ult. Starting from the Southtown Station they proceeded to Halesworth, and from thence by coach to Little Linstead, Fressingfield, and Wingfield. A lengthened stay took place at Wingfield Castle, the ancient home of the family of De La Pole. Descriptive and historical papers were read at Wingfield and other places by Dr. Raven.

THE OXFORD ARCHITECTURAL AND HISTORICAL SOCIETY.—This society carried out their two days' programme to Gloucester, Deerhurst, Tewkesbury, Bredon, Pershore, and Evesham, on the 22nd and 23rd of last month, under the most favourable conditions. The president, Mr. Jas. Parker, acted as lecturer, and conducted the members over Gloucester Cathedral. Mr. R. K. W. Owen (St. John's College) arranged the excursion to the satisfaction of everyone.

PROPOSED ELECTRIC LIGHTING OF LANCASTER.—On the 28th ult., Major-General Crozier, R.E., held a Local Government Board inquiry into an application made by the Lancaster Town Council for sanction to borrow 25,000*l.*, the estimated cost of a system of electric lighting installation for the borough, to be provided by the Brush Electrical Engineering Company, of London. For the present the Corporation propose to light only the main streets in the centre of the town; but arrangements are being made so that additional plant may be put down as required.

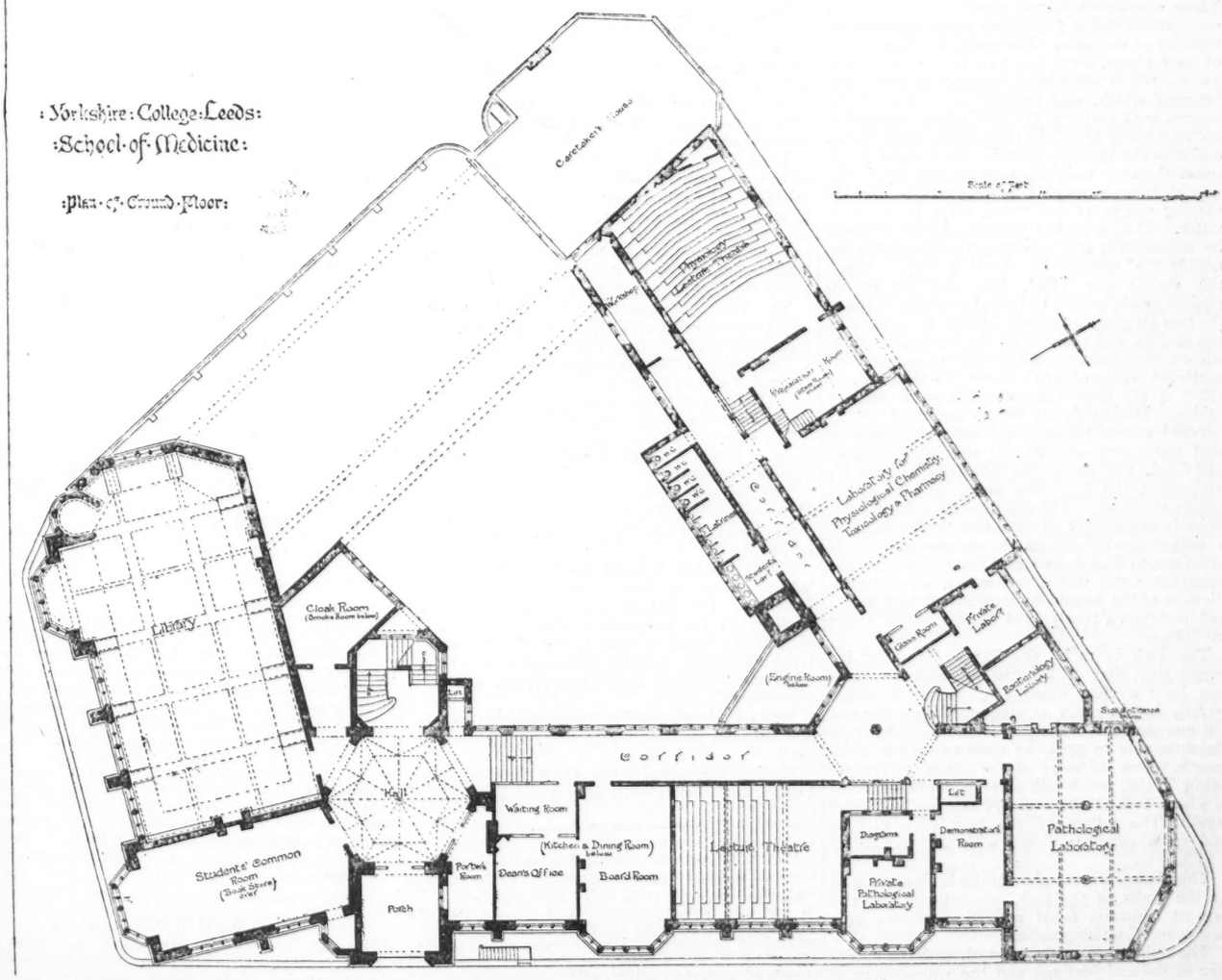
: Yorkshire : College : Leeds :
: School of Medicine :

: Plan of First Floor :



: Yorkshire : College : Leeds :
: School of Medicine :

: Plan of Ground Floor :



Plans of Leeds School of Medicine —Mr. W. H. Thorp, Architect.

THE SOCIETY OF ENGINEERS.

ON Wednesday last a visit was paid by the Society of Engineers to the new Lock and Weir Works and the Water Works, at Richmond, Surrey.

Among those present were Mr. W. A. McIntosh Valon, J.P. (President), Mr. G. A. Goodwin, and Mr. W. G. Peirce (Vice-Presidents), Mr. Jabez Church, Mr. Charles Gandon, Mr. Perry F. Nursey, Mr. A. T. Walmisley, and Mr. Joseph William Wilson, jun. (Past Presidents), Mr. R. W. Peregrine Birch, and Mr. G. M. Lawford (Members of Council), and Mr. G. A. Pryce Cuxson (Secretary).

The party were received by the Mayor and members of the Corporation, and were conducted over the Lock and Weir Works by Mr. P. le Neve Foster, Resident Engineer, and over the Water Works by Mr. W. G. Peirce, Engineer. The object of the Lock, which is now being carried out by the Thames Conservancy, under the direction of their Engineer, Mr. C. J. More, M.Inst.C.E., is to increase the depth of water in the river Thames between Richmond and Teddington Lock, at, and for some time before and after, low water.

The works consist of a foot bridge (348 ft. in length), having five arches, crossing the river at right-angles about 400 yards below the London and South-Western Railway bridge; a lock on the Surrey, and a boat slide with three lines of rollers on the Middlesex shore. The three central arches have 66 ft. span, and the end arches (one of which is over the lock and the other over the boat rollers) 50 ft. each. The girders, which are arranged to carry a double gangway, are of steel.

The three central arches are being fitted with removable sluices, the invention of Mr. F. G. M. Stoney, M.Inst.C.E., capable of holding up the water to 5 ft. 9 in. below THW (about ½ tide ordinary springs). These sluices, the largest ever constructed, are 68 ft. long, 12 ft. deep, and weigh about 32 tons each. They are suspended at each end by steel wire ropes which pass over the pulleys of the lifting gear; counter-balance weights are attached to the ends of these ropes. These weights are four in number, of eight tons each, suspended in 3 ft. square wells built into the masonry of the piers. The wells, which are made of steel plates, serve also to support the vertical guides, which are planed surfaces of cast iron, between which, and the cast iron ends of the sluices, are interposed the free rollers arranged in such a manner as to take the pressure of the water, and thus can be easily moved. In addition to the counterbalance weights, they are also fitted with special balance weights to compensate for the varying weight of the sluice, when in or out of water. Thus, a perfect balance can at all times be maintained, and consequently the sluices can readily be moved by hand power. When the sluices are lifted, they can, by an ingenious arrangement, be turned over flat, between the two gangways, and are hidden from view by the girders and parapet of the bridge, so as to allow a clear headway for vessels passing underneath the bridge of 21 ft. above THW mark, or about 4 in. more than at Richmond railway bridge. During floods the sluices need not be lowered at all; but at other times they will be shut down at about half ebb and lifted again at half flood, and the arches will then be open for navigation, the lock only being used when the sluices are down. The counter-balancing of each sluice is so perfectly adjusted that the buoyancy of a timber float fixed on the up stream side is sufficient to float it, and cause it to lift with the rising tide; this will also regulate automatically the flow of the stream underneath at low water, and maintain a nearly fixed level of water above the bridge.

The lock is to be 250 ft. long, (72 ft. 7 in. longer than that of Teddington), and the gates will have a clear opening of 26 ft. (13 inches wider), but in order to accommodate a tug and full complement of barges, it is widened out on the shore side to 37 ft. for about two-thirds of its length. The sill level of the entrance is 16 ft. below THW, which will allow a depth of water of about 6 ft. at the ordinary summer low water level. The rollers of the boat slide will be laid on a concrete floor, with an incline of 1 in 8.

The abutments and piers of the bridge, as well as the walls of the lock, are built of Portland cement concrete, faced with Staffordshire blue bricks and Cornish granite.

The sluices are made of steel, with the exception of the end bearings and the trunnions upon which they turn from the vertical to the horizontal position when raised out of sight. The estimated cost of the works is 61,000*l.*

The contractors for the sluices and superstructure of the bridge are Messrs. Ransomes & Rapier, engineers, of London and Ipswich.

The concrete foundation of the first pier was put in on March 25, 1892, and it is anticipated that the work will be completed by the end of the present year.

The members subsequently visited the waterworks.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon last at Spring-gardens, the Chairman, Mr. John Hutton, presiding.

Tenders.—Tenders were received for the construction of four bridges at the Isle of Dogs. The list will be found under our usual heading, "Tenders," at the end of the paper.

The Proposed Purchase of a Site for a new County Hall and Offices.—Mr. Dickinson, the Deputy-Chairman, moved the adoption of the report of the Establishment Committee, which recommended the acquisition of 98,000 square feet of land in Parliament-street as a site for a County Hall, at a cost of 750,000*l.* The Committee considered that the site possessed exceptional advantages. They ought to have not merely a good site, but a prominent one, which would keep the best thoughts and intelligence of London focussed upon its governing body. There were manifest advantages from a business point of view in their offices being near to the Houses of Parliament and the Government offices. He urged the Council to discuss the question fairly and to come to a definite conclusion upon it.

Lieut.-Colonel Ford moved, as an amendment—

"That the Council, in view of its resolution of June 27, instructing Committees not to bring up during the present financial year (except in matters of urgency) recommendations involving large expenditure, is not at the present time prepared to entertain any proposal for the purchase of a new site for Municipal buildings."

Dr. Collins seconded the amendment, remarking that the present was an inopportune time for discussing the proposal of the Committee, and that the site was an undesirable one.

Mr. Boulnois, M.P., in supporting the amendment, said he presumed the Council would be their own builders, and in that case another 25 per cent. would be added to the cost of the scheme.

Mr. Arthur Arnold said that, so long as London remained disunited, they could not engage in the building of a new Town Hall for London.

Lord Rosebery spoke at some length in favour of the amendment, and invited the Council to reject what he called the "fatal proposal" of the Committee. The present, he urged, was not the time for entering upon so large a scheme.

Lord Carrington said he should vote for the amendment, which he thought would practically knock the bottom out of the scheme.

The Vice-Chairman (Mr. C. Harrison), who was frequently interrupted by cries of "Vote," supported the Committee's recommendation.

The Duke of Norfolk suggested that if Lieut.-Colonel Ford was willing to substitute the word "this" for the word "any," those who had amendments on the paper should withdraw them.

The amendment was then put and carried, on a show of hands, by a large majority. A division was not demanded.

The Duke of Norfolk moved, and Mr. Benn, M.P., seconded, the substitution of the word "this" for the word "any," and the motion was agreed to.

Mr. Beachcroft declared the Council had been led away by the fervid eloquence of Lord Rosebery. He moved as an amendment the addition to the proposal of the words, "and accordingly refers it back to the Committee to bring up further detailed information as to the other sites referred to in their report, and any other sites."

Major Probyn seconded the amendment, which was lost on a division by 69 votes against to 44 for it.

Having transacted some other business, the Council adjourned shortly after 6 o'clock.

"THE GLASS PAINTING TRADE."—We have received a letter from a member of the Glass Painters' Union, referring to the letter of "J. E. P." in our last, and denying that it gives a correct representation of what happened, or of his own attitude in the matter. We have our own opinion about "J. E. P."'s letter, but the reply goes into details of workshop politics and conversation which would be out of place in a letter for publication.

Correspondence.

To the Editor of THE BUILDER.

A "BONÂ-FIDE BUILDING EXHIBITION."

SIR,—Permit me through your columns to make the announcement that it is decided to hold a *bonâ-fide* Building Exhibition, at the Agricultural Hall, in 1894.

For the last two years I have been trying to arrange for this, but hitherto without success. It is true that each year there have been at the Hall a series of stalls and stands, with a mongrel display of good, bad, and indifferent items connected with the building trade, a poor attendance and a show meagrely patronised by firms, many of whom have no reputation; rifle-shooting galleries, cabs and confectionery stalls.

A Building Exhibition, if held at all, should be properly classified: manufacturers of bricks in one section, joinery in another, and so with every branch of this all-important trade. There should be a display of all labour-saving apparatus, and in certain instances, working-machinery; but nothing in the entire building should be exhibited that is not cognate to the construction of edifices, whether cottages, mansions, or palaces, institutions, manufactories, warehouses, or stables.

Architects, contractors, small builders, foremen, mechanics, and apprentices should all be able by visiting the Exhibition to learn something that should be practically valuable now or in the future.

The great aim should be to bring into a manageable focus the most modern and best systems and items leading to the perfection of buildings.

Now to secure the foregoing *desiderata* two things are absolutely necessary: First, someone with financial means who will find the requisite money for the undertaking, and to do it well; second, the co-operation of leading architects, contractors, and manufacturers whose powerful patronage and support will secure the interest of the public.

As regards the first I am glad to inform your readers that Messrs. Larkins & Hungerford, of Bloomsbury, who are not without experience in this particular business, have undertaken to finance and manage the project at their own cost and risk, and as regards the other point, which I deem crucial to success, it is of paramount importance that there should be a consultative Council of Architects and others of high repute to control and suggest certain definite lines of action.

The firm above-named have taken the Agricultural Hall for a series of exhibitions to be held annually, with the intention of a steady advance and improvement each year.

I have been asked by many to act as hon. secretary. Whether I thus aid or not I am perfectly prepared to co-operate with others as suggested, and shall feel greatly obliged if those of your readers who approve of this new departure will write me at 200, Phœnix-street, N.W., or make an appointment for a personal interview.

As a liveryman of three City Guilds and an old Corporator, I shall endeavour to get influence in this direction, and we may count upon the London County Council, the School Boards, and other public bodies, all helping in so interesting and important a movement.

T. FREEMAN, F.G.S.

GLASGOW CATHEDRAL.

SIR,—On comparing the plan given of vaulting in Lower Church, Glasgow Cathedral, in *Builder* of July 1 with that given in Gilbert Scott's Lectures, Vol. II., page 200, it will be found that the plan in the former shows additional ribs, in shape of a diamond surrounding the central boss of the compartment marked "B" in Gilbert Scott's plan. Never having seen the building myself, I should like to know which is correct. No doubt there are others in a similar situation to myself.

WILLIAM H. ELGAR.

*** The plan as published by us is correct.—ED.

ANCIENT MONUMENTS IN THE CRYPT OF ST. JAMES'S, CLERKENWELL.

SIR,—The *Builder* of October 2, 1858, under the above heading, states that in clearing out the crypt of the above church they found the recumbent figures of the last Prior of St. Bartholemew's, Smithfield, and priors of a neighbouring religious establishment. Have they been removed to the porch as promised? I failed to get into the church to see when in London a short time back. Would not the most fitting place for the figure of the last Prior of St. Bartholomew (if not of the others) be in his own church, so skillfully restored by Aston Webb?

S. B. CHITTENDEN.

Stevenage, July 3, 1893.

SOIL-PIPES AND WASTE-PIPES.

SIR,—Mr. Buchan [p. 15, *ante*] has again misinterpreted me; he gives an incomplete and incorrect version of my words, and then finds fault with me for what I did not say; this

is not argument. I am well aware that waste pipes, as ordinarily fixed, soon become foul, but it is just this ordinary method of fixing to which I object. If any one that has read Mr. Buchan's letter will kindly turn back and read mine again, he will see where Mr. Buchan has gone astray. Mr. Buchan also thinks fit to doubt my veracity, such being the case, I must decline to have any further correspondence with him. BERNARD DICKSEE.

FILLING FOR JOINTS IN SHRUNKEN FLOORS.

SIR,—In reply to "Inquirer's" question [p. 15, *ante*] how to fill the joints of a shrunken floor which the owner will not allow to be taken up and relaid, and to which there is some objection to "slipping" with glued wood strips, I some few years since, under similar circumstances, made use of the following recipe in an old infirmary of a poor law school:—"Thoroughly soak newspapers in a paste made of 1 lb. of flour, 3 quarts of water, and a tablespoonful of alum, thoroughly boiled and mixed; make the final mixture about as thick as putty, and it will harden like papier-mâche." In my case I think a *little* plaster of Paris was added, not to the bulk but to small quantities of the paper putty as it was used; the flour in the putty will prevent the plaster setting too rapidly. If I had time to experiment and opportunity to watch the result I should, in future cases, add a little weak glue or some knotting, or both.

The owner may be right, in "Inquirer's" case, in not having the floor-boards taken up and relaid, as this course might, unless the joists are unusually large and the ceiling under exceptionally good, result in damage to the latter. Another risk is, that unless special precautions are taken, the shrinkage after *shooting the edges* and relaying may be as bad or worse than before. To prevent this, rub in the newly shot edges of the boards hot size or weak glue to seal up the opened pores of the wood. Unless the floor is subject to much wear, why not veneer it over with batten widths specially cut thin (say $\frac{1}{4}$ in. or $\frac{3}{16}$ in. finished thickness), seasoned and dried after being prepared, or if narrower widths are desired, the same thicknesses could be flutted out of planks or 4 in. deals?

I have heard of caulking with whitelead and tow, which, I suppose, is what is done on the decks of yachts, but I have not actually seen such caulking in buildings. I have not had the opportunity of seeing the result of wear and time on the paper puttying but if "Inquirer" will send me his address, I shall be pleased to direct him to the building so that he may examine the work for himself.

ARTHUR HARSTON.

SIR,—Some time ago I successfully filled similar openings with a mixture of thin glue and sawdust; but it struck me afterwards that paste and sawdust would have done equally well.

The glue mixture requires keeping hot and rubbing into the open joints with the fingers, and wiping off as you go along.

I have heard that paper putty or pulp, made by soaking newspaper in paste, answers well.

C. F. M.

The Student's Column.

GEOLOGY II.

THE EARLY STAGES OF THE EARTH.

WHEN we look up to the sky on a clear night we observe a cloudy streak running over a part of it, which is popularly known as the "milky way." Astronomers have discovered several other masses of a similar kind, which are all called *nebulæ*. These nebulæ have been requisitioned to assist in framing a hypothesis accounting for the original formation of the various planets of the solar system—the earth, of course, included. According to this hypothesis, nebulous matter, which once reached to the uttermost confines of the system, commenced to condense at its central part, and in so doing left behind successive rings which subsequently assumed the form of planets, sometimes with a further formation of rings, which, in the case of Saturn remain, though in other planets they have become detached, and form satellites. Thus, the moon was detached from the earth. It is no part of our function to show in what way this hypothesis is substantiated by observed facts; the reader can ascertain that on reference to any text-book bearing on the subject. Suffice it to say that we may fairly assume that the condensation was accompanied by cooling, and the earth gradually consolidated, whilst in the hollows of its rugged exterior, water, derived from vapour, at length collected in great quantity. At that time the surface of the earth, both land and water, was warm, and during the process of cooling of the heated mass within, must have been subjected to considerable disturbance. Subsequently the crust hardened and became more rigid and stable, and both land and water were cooler.

THE ORIGIN OF ROCKS.

Then the rocks composing the crust having been consolidated from molten matter were entirely igneous in character. These must have been attacked, as soon as possible, by the water, and denudation or wasting away of the land thus began. The materials so derived subsided to the bottom of the water, and aqueous rocks in this manner were for the first time deposited on the sea floor. Meanwhile, the water having become inhabited with organisms of various kinds, these on dying were entombed in the great thickness of aqueous rocks, and formed "fossils." But the crust, although to a certain extent rigid, was still subjected to disturbances from within and without, acting either suddenly, or throughout long periods, producing great cumulative effects, and the sea-floor and dry land changed places several times under these peculiar conditions. One of the accompanying results of these earth movements was the development of enormous pressure, which, by the aid of Nature's chemical laboratory, completely changed the character of those parts of the igneous and aqueous rocks subjected to such pressure; the superincumbent weight of the rocks also, by an analogous process, tended to materially alter the nature of those portions of themselves which were situated at some depth. A very elementary study of physics would convince the student of the reasonableness of this part of the hypothesis.

Thus three distinct classes of rocks were formed—(1) the *igneous*, from consolidated molten matter; (2) the *aqueous*, laid down in water; and (3) the *metamorphic*, consisting of either of the foregoing, materially altered in character. And these three classes are, in fact, the same as we find on the surface of the earth at the present day; the only other kind discovered being (4) the *æolian*, loose material, blown into favourable spots by the action of the wind, and there accumulated. These latter do not constitute a very appreciable proportion of the whole.

It is extremely doubtful whether any of the rocks now found formed part of the original crust of the earth. The agents of denudation, with their unceasing action, have had a practically unlimited time in which to ply their avocation, and they have accomplished their work with energy and persistency, so it is more than probable that the original crust was long since worn away, the materials having been made use of in newer formed strata. Certain it is that we have abundant evidence of the metamorphism of enormous thicknesses of what must originally have been more ancient aqueous rocks than any of which we have now any certain knowledge. In other words, beneath the oldest of the recognised aqueous rocks we find more ancient metamorphic rocks which were originally aqueous.

Parenthetically it may be observed that as these latter must, in the ordinary course of events, have contained the remains of the most ancient forms of life, and these by metamorphism were obliterated, we stand no chance whatever of being able to ascertain the nature of the prototypes of life—a sad circumstance for the palæontologist. The acknowledged oldest aqueous rocks in this country, however, have yielded an abundant fossil fauna, which includes some of the highest types of invertebrate animals; it is certain, therefore, that life must have begun long anterior to their deposition. We know that it had already become highly specialised—for invertebrates—before those rocks were in existence.

THE AQUEOUS ROCKS.

Now, the aqueous rocks are of immense thickness—several miles—and if we attentively examine their fossil contents we find, commencing at the lowest zone with the oldest known and extinct forms of life, that fauna after fauna succeeded one another, each one being different to its predecessor, until we arrive at the uppermost portion of the whole succession of rocks, where we discover that the entombed remains are of the same species as animals now in existence. The lapse of time between the deposition of the oldest aqueous rocks, and the newest, must have been enormous to have permitted so many and such vast changes in the different faunæ, in the interval. At certain horizons we mark the incoming of fish, amphibians, reptiles, mammals and birds respectively; we observe that whole orders of beings came upon the earth, with their genera and species, which after performing their *rôle* died out, and were replaced by other new orders, which in turn became extinct also—a process continually repeated until the present phase of life came into existence. Each group, or facies, of life, having naturally been confined to the strata laid down at the time of its existence, the student will readily perceive that it is convenient to give each portion, or horizon of the strata thus characterised, a definite name so as to be able to refer to it readily; the following are the names adopted for the chief divisions, or horizons, of the aqueous rocks in this country:—

Divisions of the Aqueous Rocks.

Cainozoic or Tertiary.	Pleistocene	Drift deposits.
		Glacial beds.
	Pliocene	Norwich crag.
		Red crag.
		Coralline crag.
	Miocene	Absent in Britain.
	Oligocene	Hamstead beds.
		Bembridge beds.
		Osborne beds.
		Headon beds.
	Eocene	Barton beds.
		Bracklesham beds.
		London clay.
		Woolwich and Reading beds.
		Thanet beds.
Mesozoic or Secondary	Cretaceous	Chalk.
		Upper Greensand.
		Gault.
		Lower Greensand.
		Wealden beds.
	Jurassic	Purbeckian.
		Portlandian.
		Kimmeridgian.
		Corallian.
		Oxfordian.
		Great Oolite.
		Fullers' Earth.
		Inferior Oolite.
		Lias.
	Triassic	Rhætic beds.
		Keuper beds.
		Bunter beds.
Palæozoic or Primary.	Permian	Upper Red Sandstone.
		Magnesian Limestone.
		Lower Red Sandstone.
	Carboniferous	Coal measures.
		Millstone Grit.
		Carboniferous Limestone.
	Devonian and Old Red Sandstone.	Limestones and Sandstones.
	Silurian	Ludlow group
		Wenlock group.
		Llandovery group.
	Ordovician	Caradoc or Bala group.
		Llandeilo group.
		Arenig group.
	Cambrian	Tremadoc Slates.
		Dolgelly group.
		Menevian group.
		Harlech and Longmynd groups.

In the above table the oldest aqueous rock is placed at the bottom and the newest at the top.

OBITUARY.

MR. HENRY GILL, the head of the Berlin Municipal Waterworks, died last week at the age of seventy. Mr. Gill first visited Berlin in 1853 on behalf of an English company which was constructing some waterworks in the suburb of Stralau. He afterwards acted as engineer-in-chief for this company until 1874, when the Municipality took over the whole concern, and gave him the entire management of it. Mr. Gill's skill has been much appreciated both by the technical world and the Municipality he worked for until a few week's back. His death is considered a great loss throughout Germany. He was for many years a popular figure both at professional and social gatherings.

HERR ALEXANDER STUDE, the Chief Officer of the Berlin Royal Police Fire Brigade, died suddenly last week while doing duty as a captain in the Prussian Army Reserves. His age was forty-five. He had originally been educated for the architectural profession, but after having served in the Franco-German War (in which he won the Prussian Iron Cross) he entered the fire service. Prior to being appointed chief officer in Berlin in 1887, he had commanded the Bremen force. Nearly all the important Government fire, police, and building regulations of the last decade were framed in accordance with his ideas, notably the important theatre regulations of 1889 and the Berlin "Suburban" regulations of last year. He was as well known for his rational preventive measures against outbreaks of fire as for his gift of organisation of brigades, and his skilful tactics when attending conflagrations. He was esteemed as highly by the Emperor, Government, and Municipal authorities as he was popular with his subordinates and the inhabitants of Berlin. The public funeral accorded him was most imposing. The military authorities lose in him an expert on army clothing, the electricians a savant on lightning, and the architectural profession a specialist in iron construction.

THE BRITISH METAL EXPANSION CO., LIMITED, announce that they have removed from Billiter Avenue, and opened a show-room and warehouse at 3, Lambeth-hill, Queen Victoria-street.

GENERAL BUILDING NEWS.

PROPOSED SCHOOLS, STONE.—We are informed that the Stone School Board have selected the plans of Mr. J. T. Walford, of Northfleet, for the new schools to be built at Stone and Beam. Nine designs were sent in in competition for these schools.

BATHS, WOOLTON.—On the 28th ult. new baths were opened at Woolton, near Liverpool, and presented to the inhabitants by Mr. Holbrook Gaskell, J.P. The baths occupy a site at the junction of Allerton-road and Quarry-street, and the style of architecture is Italian. The offices occupy the angle of the two roads, and are faced in red Woolton stone. The exterior of the swimming bath and private baths is of red terra cotta bricks relieved by stone dressings. There are six private bath-rooms fitted up with glazed earthenware baths, &c. At the end of the entrance passage is placed the swimming bath, 60 ft. long by 25 ft. wide, lined with white glazed tiles with ornamental border. An earthenware foot-bath with shower is formed in an angle recess. Along one side is a range of eighteen dressing-boxes, and over the entrance end is a gallery. This bath has the bottom, walls, and gangways, formed in cement concrete. At the far end is formed a large doorway, with folding doors opening outwards, to serve as a speedy and safe exit in case of panic, since it is intended that the building, with the swimming bath boarded over, shall be used for lectures, entertainments, &c. The bath is lighted by a large skylight. At the side of the bath in the rear are placed the laundry and boiler houses, fitted up with the latest appliances. The contractor is Mr. Dilworth, of Wavertree, and the engineering work has been done by Messrs. Thos. Bradford & Co., of Manchester and Salford. The total cost has been about 3,000*l.* The whole of the work has been carried out from the plans prepared by, and under the immediate superintendance of, Messrs. Horton & Bridgford, architects and surveyors, of Manchester.

CHURCH, HEAVILEY, STOCKPORT.—The foundation-stone of St. George's Church at Heaviley, Stockport, was laid on the 17th ult. The new church occupies a site in a locality where the population is rapidly increasing, and it will have a spire rising to a height of 230 ft. Messrs. Paley, Austin, & Paley, of Lancaster, are the architects, and the masons' work is being carried out by Messrs. W. Thornton & Sons, of Liverpool. Messrs. Hatch & Sons, of Lancaster, are entrusted with the woodwork.

PARISH CHURCH, MALONE, NEAR BELFAST.—The foundation-stone of a new parish church was laid at Malone a short time since. The new church is situated at the junction of Osborne Park and Malone-road. It is being built in the Gothic style of the Early English period. The church is being built of rubble work, faced with Scrabo shoddies, and with dressings in red stone from the Dumfries quarries. The internal walls are being lined with red bricks from the Annadale Works. The church is cruciform in plan, the axis being placed due eastward and west, and a tower rises from the north-east corner. The chancel, transepts, and organ chamber, will be separated from the nave by cut stone arches carried on moulded piers. The roof will be of selected pitch-pine, open to the ridge. The present scheme includes an outlay of upwards of 4,000*l.*, which will complete the chancel, the transepts, part of the nave, and the tower, and will seat about 450 people; when the nave is completed it will add about 220 sittings, and it is calculated that 2,500*l.* additional will entirely finish the building. The work is being carried out by Messrs. W. J. Campbell & Son, late Dixon & Campbell, from the plans and under the superintendence of Mr. Henry Seaver, architect, of Belfast.

BUILDING IN LEEDS.—Mr. Davidson Hainsworth, Building Inspector to the Leeds Corporation, has just issued his report for the year ending March 25. The 2,527 houses shown upon the 447 plans approved by the Building Clauses Committee, during the year, included 19 villas, 36 semi-detached villas, 854 through houses, and 1,618 back-to-back houses. The 30 miscellaneous plans were for one addition to church, two chapels, two additions to chapels, one convent, two schools, 18 additions to schools, one orphanage, two hotels (rebuilding), and one extension of hotel. During the year, 1,915 houses have been completed and certified for occupation, including 6 villas, 19 semi-detached villas, 632 through houses, and 1,258 back-to-back houses. During the same period, 768 miscellaneous buildings have been completed and certified, amongst which were one addition to church, one chapel, four additions to chapels, two mission rooms, one addition to mission room, four schools, eleven additions to schools, one extension, Leeds General Infirmary, one Yorkshire College Hall of residence, one Oddfellows' Hall (Kingston Unity), and one bank, &c.

"OLYMPIA," NEWCASTLE-ON-TYNE.—A building, which will be known as "Olympia," is being erected at Newcastle, and will be capable of seating about 5,000 people. The building is proposed to be constructed with framework of cast and wrought iron and covered with corrugated iron, riveted and bolted, the pillars and standards to be supported on beds of concrete. The floor will be covered with 1-in. grooved and tongued boards. All the doors of the place will be made to open outwards. The building will be lighted by gas and electric light. The main entrance, which will be in Northumberland-road, will be 20 ft. wide, and will lead into a vestibule in which will be cloak-rooms, pay-box, and other accommodation. From this vestibule, and on the same level, access will be gained to the body of the hall, which will be divided from the vestibule by three sets of swing doors. Access to the gallery will be obtained by two staircases. The stage will be 52 ft. by 25 ft. wide. In connexion with the stage, there will be dressing, green, retiring, and band rooms. Below the stage there will be six dressing-rooms and other apartments which will be approached by separate entrances at the rear of the building. The gallery will run round three sides of the building, and will be 12 ft. 6 in. wide. At the end of the gallery there will be a lounge, and in the body of the hall there will be four swing doors to be used as extra exits, in addition to the ordinary doors. The size of the hall will be 135 ft. long, 78 ft. wide, and 50 ft. high. The gallery and roof of the hall will be supported by ornamental iron columns. The roof will be of iron, and the lighting of the body of the hall will be obtained by a range of lights running along both sides of the building. Messrs. Oliver & Leeson, of Newcastle, are the architects.

SCHOOLS, ST. HELENS, LANCASHIRE.—At the meeting of the St. Helens Health Committee on the 28th ult., Messrs. Willink & Thicknesse, architects, of Liverpool, submitted plans for the erection of new day and Sunday schools and mission-room on land at the corner of Wolseley-street and Keswick-street, Cowley Hill. The new building will consist of two stories, 17 ft. 6 in. and 15 ft. respectively. The first floor will be for girls, and the ground floor for boys. There will be two rooms, to accommodate 140 scholars each, four classrooms for 80 each, and four for 50 each, with lobbies and lavatories on each floor. The ground floor will also be used as a mission church, and will take the place of York-street mission-room. A chancel is included in the scheme, as a memorial to the late Rev. A. H. Wolstenholme, and it will be shut off from the school by folding doors. The total cost is estimated to be nearly 8,000*l.*

SCHOOLS, MOSS SIDE, LANCASHIRE. — The memorial stone of St. James's Schools, Moss Side, was laid on the 1st inst. The schools are situated at the junction of Barton-street and Great Western-street. They are one story high, and consist of a central hall 60 ft. by 30 ft., with an opened timbered roof 25 ft. to the ceiling. On the north and south sides, divided by glazed screens from the main hall, are six class-rooms, each 15½ft. by 12 ft., and at the east end is the kitchen and retiring-room, with separate entrances. The parish-room is at the west end, near the two principal entrances from Barton-street. The contractors for the building are Messrs. F. & E. Haynes, of Moss Side, and the outlay will be 1,250*l.*, in addition to the cost of the concrete roofs. The architect is Mr. John Lowe, of Manchester.

SCHOOL EXTENSION, HARPURHEY, MANCHESTER.—The memorial stone of the infants' department of the Burgess-street Board School, Harpurhey, was laid by Dr. R. C. Smith, on the 1st inst. The building will be of brick and terra-cotta, and will comprise one large room and a range of four class-rooms capable of being thrown into one. The architects are Messrs. Preston & Vaughan, and the builders Messrs. Wilson & Toft. The new department will accommodate 510 children; the estimated cost of the extension, including the site, being 4,500*l.*

WESLEYAN CHAPEL, EAST MARKHAM, NOTTINGHAMSHIRE.—The foundation-stones of a new Wesleyan Chapel for East Markham, about six miles from Retford, were laid on the 28th ult. Mr. Theophilus Wilson, builder and contractor, of East Markham, made the authorities a present of the site. The architect is Mr. John Allsopp, of Worksop. The style will be Gothic, the accommodation for 200 persons, and the cost 700*l.*

POST OFFICE EXTENSIONS IN SHEFFIELD.—On the 3rd inst. the new premises erected by the Post Office authorities in Flat-street, Sheffield, were opened to the *employés* engaged in the sorting and despatch of letters and parcels. So far as the public are concerned, the new offices will replace the temporary building in Commercial-street, which has been used as a parcels post office. The new building has been built by Mr. S. Warburton, of Manchester, from designs made by Mr. A. Tanner, of the Works Department.

CHURCH, CUDWORTH, YORKSHIRE.—The Archbishop of York consecrated a new church at Cudworth on the 29th ult. It is to be called St. John the Baptist, and has been erected at a cost of about 2,600*l.*, to seat 238 worshippers. It is from the designs of Messrs. Smith & Brodrick, of Hull, and is in the Early Decorated style. Messrs. B. Graham & Sons, Huddersfield, have been the contractors.

PENDENNIS HOTEL, FALMOUTH.—A new hotel has just been erected on a site adjoining Falmouth beach. The hotel faces almost due south. The main entrance has a vestibule and double screen doors. The coffee-room on the ground floor is situated at the western end of the building, and in length is 41 ft. with a breadth of 21 ft., exclusive of the bays. Adjoining, and at right-angles, is an annexed coffee-room, 30 ft. by 16 ft. The entrance hall is between this room and the reading-room, which also faces the sea. The reading-room communicates with a drawing-room. Adjoining the drawing-room at the end of the long corridor facing the south-east is a bijou smoking-room, and on the opposite side of the corridor is a billiard-room. The first floor contains a large number of bedrooms and two sitting-rooms. At each end of the corridor there is a bath-room. On the first floor there is also a warming apparatus to ensure the proper airing of bedding. The second and upper floor consists entirely of bed-rooms. The style of architecture is the Queen Anne. The building has been erected by Messrs. James Julian & Co., of Truro, from the designs of Mr. S. Trevail, of Truro. The total of the freehold, building, and furniture has amounted to about 10,000*l.*

PROPOSED PUBLIC OFFICES AT OTLEY.—On the 30th ult. Mr. Rienzi Walton, M.Inst.C.E., Local Government Board Inspector, at the Local Board-room, Otley, held an inquiry into the application by the Local Board for sanction to borrow 2,500*l.* for the purchase of land and the erection thereon of public offices, 645*l.* for the purchase of a steam fire-engine and steam road-roller, and 350*l.* for the provision of a disinfector and mortuary.

NAVE, ST. GWLADY'S CHURCH, BARGOED, MONMOUTHSHIRE.—On the 29th ult. the foundation stone was laid of the nave of the St. Gwladys' Church, Bargoed. The old nave, which was of iron, was built in 1876, and the chancel a few years later, at a cost of 1,300*l.* The church as it now stands, with the additlon of the new nave, will seat about 350 persons. The contractors are Messrs. W. Williams & Sons, and the architect is Mr. E. M. Bruce Vaughan, Cardiff.

SANITARY AND ENGINEERING NEWS.

THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—The annual meeting of this Association is to be held in West Bromwich, on Thursday, Friday, and Saturday, July 13, 14, and 15. A very good programme has been arranged, under the direction of Mr. J. T. Eayrs, Borough Engineer and Surveyor of West Bromwich, who is the new President of the Association.

STAINED GLASS AND DECORATION.

WINDOW, MANEA, CAMBS.—The east window of the parish church of Manea, Cambs., has just been filled with stained glass, the gift of Miss Green, of Manea, in memory of her father. The subject represented is the Ascension. The work has been carried out by Messrs. Mayer & Co.

WINDOW, PARISH CHURCH, LEIGH (ESSEX).—The west window of the parish church of Leigh has been filled with stained glass to the memory of the Rev. Canon King (brother of the Bishop of Lincoln), late rector of the parish. The window was erected by subscriptions among parishioners and friends, and was dedicated on the 29th ult. It was designed and executed by Messrs. Percy Bacon & Brothers, of London.

FOREIGN AND COLONIAL.

FRANCE.—It is announced definitely that M. Saglio has been appointed curator of the Cluny Museum; his duties will be divided with M. Molinier as curator of *objets d'art*, and M. Courajod for sculpture.——The health of the eminent sculptor, Dalou, which was causing some anxiety, is now much amended.——On Thursday last, the monument to M. Fustel de Coulanges was inaugurated in the Salle des "Actes" in the École Normale. The monument consists of a marble bust by M. Pierre Ogé, placed on a pedestal designed by M. Mayeux, professor at the École des Beaux-Arts, architect of the École Normale.——The Municipal Council of Paris has decided that the monument erected to the memory of the celebrated sculptor Barye shall be placed at the point of the Ile Sainte Louis, before the Hôtel Lambert, and near the pont Sully.——M. Antonin Mercié has just finished the model of the monument to the memory of Jules Ferry, which is to be erected on the place de Saint Dié (Vosges). The sculptor has made him standing with his hands behind his back, a very favourite attitude with him.——The Prefet de la Seine has just inaugurated at Chatillon the monument to the memory of the soldiers killed in 1870, at the battle which took place near there.——Mr. J. B. Martenot, architect of the town and of the hospitals of Rennes has been chosen officer of Public Instruction, M. Alfred Beau, painter, Director of the Musée de Guimper, has received the Cross of the Legion of Honour. M. Beau has made an important ethnographic and ceramic collection.——The jury appointed to judge the open competition for the erection of a monument to the memory of Doudart de Lagrée, has reserved the designs of MM. Jay, Rambaud and Portal, Recouce, and Rubin, for the second competition.——The first prize for the competition for a monument, which is to be erected at Valance (Drôme) to the memory of Emile Augier, has been awarded to Madame la Duchesse d'Uzès.——The Minister of Public Works has just inaugurated the new lines between Larguac and

Mauriac, and Brive and Limoges. These new routes will considerably shorten the journeys from Paris to Aurillac, and from Paris to Toulouse. This last line passes through a very hilly country, and has necessitated some very important work; it has cost 450,000 fr. per kilomêtre. —— A new railway line has also been opened from Rozoy-sur-Seine to Liart, which unites the "Nord" railway system with that of the "Est."—— The Council of the "Nord" railway company have adopted, in principle, a scheme for subterranean railway routes uniting the Gare du Nord with the Halles Centrales and the Place de l'Opera. This latter branch will have its terminus at the Boulevard, and the access to the railway will be at the ground-floor of the Grand Hôtel.——All our readers will be glad to hear that M. Charles Garnier, who has suffered for some time under a painful local ailment, has undergone a snccessful operation, the result of which will probably lead to the speedy recovery of his health.——The death is announced of M. Jules Doupouy, architect to the town of Mont-de-Marsan, at the age of thirty.——A painter who has long been lost sight of, M. Benedict Masson, a pupil of Delaroche, has just died at the age of seventy-six. He executed the large frescoes which decorate the Cour d'Honneur of the Hôtel des Invalides.

MUNICH.—The annual International Art Exhibition was opened on July 1 with much ceremony at the Crystal Palace. The exhibition is considered to be an exceptionally interesting one, and superior to this year's exhibition at Berlin. Among the English exhibits are some by Mr. Alma Tadema, and a special collection of Mr. Watts' paintings. Belgium, the Netherlands, and the United States are well represented.

MISCELLANEOUS.

THE SURVEYORS' INSTITUTION SPECIAL CERTIFICATE EXAMINATIONS, 1893.—The following candidates are declared by the Examiners to have passed the Special Certificate Examination in Forestry, held on the 13th, 14th and 15th ult., viz.—Burnett, George John Mulcaster, of Bylands, Redbourn, Herts; Madge, John, of Hope End Estate Office, Ledbury, Herefordshire; Martin, Thomas, of North Place, Redbourn, Herts; and Maughan, John, of the Estate Office, Jervaulx Abbey, Bedale, Yorkshire.

KIRKSTALL ABBEY.—The *Athenæum* states that the Leeds Corporation have resolved, under the advice of Mr. J. T. Micklethwaite, architect, who has supervision of the works, to suspend the ornamental laying out of the grounds until they have fully ascertained what is the extent of the remains buried underneath. So far the outer court's west side has been opened out, leading to the discovery of a big wall, in two stages or stories, of thirteenth century date, together with a spacious kitchen, offices, private chambers, &c. These apartments are taken to be the abbey's principal guest-house; and it is expected that further explorations on the west and south sides of the guest-house (if such it is), as well as on the north, and by the river, will enable them to present a complete plan of the abbey precincts.

PUBLIC IMPROVEMENTS AT DARLINGTON.—Mr. R. Walton, C.E., Local Government Inspector, conducted an inquiry at Darlington Town Hall on the 29th ult. in regard to proposals to borrow money for public and private improvements aggregating an amount of 10,798*l.* It is proposed to build a new bridge at the bottom of Tubwell-row, and widen the thoroughfare contiguous to St. Cuthbert's Church, which will be opened out by the removal of property.

PUBLIC WORKS, WEST HARTLEPOOL.—On the 28th ult. Mr. Rienzi Walton, M.Inst.C.E., acting on behalf of the Local Government Board, concluded an enquiry respecting the application of the Corporation to borrow 1,613*l.* for market, and 1,064*l.* for street improvement purposes.

EXCURSION OF CARDIFF MASTER BUILDERS.—The first annual excursion in connexion with the Cardiff Master Builders' Association took place at Chepstow and the Wye Valley on the 1st inst. The party inspected the castle, and subsequently left Dell-road by brake for Tintern, taking Wyndcliff *en route*, returning afterwards to Chepstow, where dinner was served at the Beaufort Arms Hotel. Cardiff was reached shortly after nine o'clock.

DINNER AND PRESENTATION TO MR. JOHN DAVIS.—At Beale's Restaurant, Holloway-road, on Tuesday evening, a complimentary dinner was given to Mr. John Davis "to celebrate the victory obtained over the Hornsey Local Board *re* Wightman-road (4th section)." Mr. A. Morton, President of the Association of Master Builders of Hornsey, presided, and Mr. C. Peek occupied the vice-chair. During the evening Mr. Davis was the recipient of an illuminated address and a gold watch. The address was as follows:—"To Mr. John Davis. The Association of Master Builders of Hornsey and friends have great pleasure in presenting to you this testimonial, with the accompanying gold watch, in recognition of the very great service you have rendered to owners of property and others in contesting the action brought by the Hornsey Local Board to recover the cost of re-sewering the fourth section of Wightman-oad. The action was recognised as being of the greatest importance, as its success would have imposed a heavy burden upon owners in the future in respect of similar work. We, the undersigned, beg to put on record our full appreciation of the splendid public spirit which prompted you in so successfully contesting the action which was carried up to the Court of Appeal (8th March, 1893), before t was abandoned by the Hornsey Local Board." [Here followed the names of the subscribers.]

WAS CHEPSTOW CASTLE BUILT BY THE ROMANS?—Mr. W. H. Greene, in a letter to the *South Wales Daily News*, writes as follows:—After the series of discoveries that I have recently made in the neighbourhood of Chepstow, I not only unhesitatingly say that the so-called "Offa's Dyke" is really a grand Roman military work in actual connection with a camp all along the lower course of the Wye, but I further dare to say that Chepstow Castle was partly built by the Romans, and that I can there actually lay my hand on their work. When I began to write my "History of Chepstow" I referred to the old legend that the "chapel" (really the "keep") of Chepstow Castle was built by Longinus, the father of the soldier who thrust his spear into the side of the crucified Jesus, and that I accepted this legend, less Longinus, as serving to show that the Romans occupied this neighbourhood. The discoveries that I have recently made give greater significance and force to the old story, and I have now no doubt that part of the walls which we see in the keep at the present day are actually Roman work. If you go into the Castle Dell and look closely at the walls of the keep, you will see that, in the very lowest part, there is, reaching in height about 12 ft., a course of masonry of very large stones. These closely resemble in character the stones, a yard long, laid with such beautiful regularity in the top-most line of ramparts in Llancant Camp, and they further remind one that the late Professor E. A. Freeman, seeing somewhat similar stonework in parts of Caerwent Church, at once gave his opinion that that part was Roman. Looking again at the exterior wall of the keep, you will see superimposed upon the course of very large stones a course of masonry of smaller stones, carried to a further height of about 15 ft., and then there comes the thin red line of Roman bricks, four deep, carried all along the face of the keep. Now, if you go inside the castle you will find on this keep, just above the thin red line, indications of three round-headed arches. I had till now been under the impression that these arches were Norman work. I deeply regret that I can no longer obtain the opinion, always most promptly and courteously given (after the manner of true gentlemen), of the lamented Professor on this point. The lower part of the wall I have no doubt about. Thus, as another of the important result of my discovery of the camp at Tutshill, I am enabled to begin the history of Chepstow Castle at its real starting point—a strong Roman fortress, dominating a passage over the Wye at the side of the present road bridge, and most likely built upon the site of an earlier British occupation. Newspaper controversy on these matters I must decline. This is my little history, and contains my opinions, the degree of value of which will have to be decided hereafter. People will very likely differ from me, and they are at perfect liberty to write books on their own account.

LEGAL.

ARCHITECT'S CLAIM FOR COMMISSION.

FARTHING *v.* TOMKINS.

THIS was an action (tried in the Queen's Bench Division of the High Court of Justice, by Lord Chief Justice Coleridge and a special jury on Tuesday last) by an architect for 408*l.* on a balance of account arising out of the rebuilding of the Provence Hotel, Leicester-square, and it raised again the important question which arose in this Court in a case of "Burr *v.* Ridout," reported in the *Times* of February 22 last,* and constantly arising — whether, when from want of funds or some other cause a building is not erected, the architect is entitled to charge commission. The defendant had engaged, as he said, to employ the plaintiff upon condition that he should submit plans which could be carried out for 8,000*l.*, and no more, and also on condition that he should procure the necessary finances, but which conditions the plaintiff, as the defendant alleged, had not fulfilled, and therefore, the defendant said he had dismissed him. The plaintiff, on the other hand, claimed "on balance of account rendered for professional services as architect and surveyor in connexion with the proposed rebuilding," also in connexion with certain finance negotiations, 523*l.*, giving credit for 115*l.* as paid on account, leaving a balance of 408*l.*; while the defendant contended that the 115*l.* paid was enough for any services rendered.

Mr. Witt, Q.C., and Mr. Rose-Innes were for the plaintiff; Mr. H. Dickens, Q.C., and Mr. F. Low were for the defendant.

After some evidence had been tendered, negotiations took place between counsel, which resulted in their proposing to leave the matter to the arbitrament of the Lord Chief Justice.

His Lordship at once assented to this, and saw the leading counsel on both sides in his private room, and afterwards saw the parties personally, and then it was announced that he would give judgment on the following morning.

On Wednesday Lord Coleridge gave his decision, according to which judgment was given for the plaintiff for 210*l.*

We have commented upon the case in another column, but have no space to give the details of the evidence and the grounds upon which the Lord Chief Justice based his decision. These will be found reported at some length in the *Times* for Wednesday and Thursday, July 4 and 5.

* And also in the *Builder* for February 25 last, p. 157, with comments on the case on p. 143.

CAPITAL AND LABOUR.

THE CARPENTERS' STRIKE AT REDDITCH.—This strike, which has continued for about a month, has concluded, the masters having acceded to the men's demand for an additional ½d. per hour all round.

MEETINGS.

SATURDAY, JULY 8.

St. Paul's Ecclesiological Society.—Visit to Rochester. Train from Victoria at 10.5 a.m.

MONDAY, JULY 10.

Clerks of Works' Association (Carpenters' Hall).—Monthly Meeting. 8 p.m.

TUESDAY, JULY 11.

Glasgow Architectural Association.—Visit to a house, Dalziel Drive. 6 p.m.

THURSDAY, JULY 13.

Incorporated Association of Municipal and County Engineers.—Annual Meeting, West Bromwich.

FRIDAY, JULY 14.

Incorporated Association of Municipal and County Engineers.—Annual Meeting (continued).

SATURDAY, JULY 15.

Architectural Association.—Visit to Penshurst-place, Kent. Trains 9,30 a.m. and 2 p.m. from Charing Cross.

Incorporated Association of Municipal and County Engineers.—Annual Meeting (continued).

Liverpool Engineering Society. — Excursion to the Penmaenmawr Granite Quarries.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

16,556.—CHIMNEY TOPS: *W. Dearle.*—According to this invention, two tubes of any desired section and of such relative size or diameters as to provide between the inner and outer tubes a passage of air, are arranged one within the other. The inner tube is in the form of a truncated cone, with longitudinal openings to increase the draught. The outer tube extends from below these openings to a short distance above the space between the top of the inner tube and a deflector plate. Currents of air entering at the lower end of the outer tube pass out at the top, a portion of the air passing into the inner tube and thereby increasing the up draught.

17,239. — MITRE BLOCK AND JOINT CRAMP: *H. Smolinski.*—The appliance which is the subject of this patent is of a metallic frame with mitre blocks enclosing two loose pieces of hard wood with a saw cut in the centre for cutting a mitre in mouldings of various sizes. The blocks are operated by screws with knurled heads. When it is desired to use the apparatus as a joint cramp, the mitre blocks and loose pieces of wood are removed for the purpose of placing the angle of the joint in between the face plates of the cramp, the cramp being fixed by means of the screws.

352.—GULLY TRAPS: *W. Oates and others.*—Consists in forming the traps in cross section in the shape of a pentagon, hexagon, or polygon, or triangle, so that when the gully is placed against a wall or other surface, the overflow pipe can either be made to project at right angles or to the left or right, so that the trap can be adapted to meet connecting pipes of three angles.

5,754.—LADDERS: *W. E. Richards.*—This consists of a ladder in which the steps or treads are automatically maintained in a horizontal position, irrespective of the angle at which the ladder itself may be adjusted or secured to the structure with which it is used; pivotted brackets are used with each step and automatically adjusted from the top or bottom of the steps.

6,829.—WOOD PAVEMENTS: *F. O. Hartung* (Jena).—To obviate the disadvantages attendant on the use of wood for pavements as at present, cracking of the surface, &c., each wood block is fitted with a metal ring which holds the block firmly in its place and prevents swelling of the wood from moisture. The wood blocks are driven tightly, each within the ring which encloses it, for the full depth on all sides.

6,731.—CORNICES, MOULDINGS, AND WALL COVERINGS: *J. Pettijean.*—To replace the richer class of wall papers, metallic hangings are by this patent proposed to be employed. This metal, which is preferably copper, may be ornamented in relief or colours and may be attached by soldering or other means.

7,955.—HAND PLANES: *G. Leadbetter.*—These planes are provided with guiding strips and stop blocks adjustable so that the planes may be used for stop-chamfering or stop-grooving work.

NEW APPLICATIONS FOR LETTERS PATENT

JUNE 19.—12,099, B. Esmarch, Joiners' Cramps.—12,023, J. Hind, Machinery for Mixing Paint, &c.—12,028, P. Jones, Clamp.—12,052, Z. Leglay, Automatic Springs for Doors, Windows, &c.—12,063, J. Jones and others, Water-Waste Preventers or Flushing Apparatus.—12,065, C. Stockwell and P. Smith, Siphon Tank for Flushing Water-closets.

JUNE 20.—12,079, W. Walton and H. Medlicott, Draught

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*School Building	School Bd. for London	150*l.* 100*l.* & 50*l.*	Sept. 15

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Barges for Removal of Refuse, &c.	Clerkenwell Vestry ..	W. Longhurst	July 10
Stables and Harness Room	West Stanley Co-op. Soc.	.....	do.
*Repairing and Tarring the Dolphins, &c..	Met. Asylums Board..	*Official*	do.
9-inch Pipe Sewer (200 yds.)	Calverley Local Board	do.	do.
An Eight-Cell Destructor	Leeds Corporation . ..	do.	do.
Hut for Port Sanitary Staff	Belfast Bd. of Guar.	do.	July 11
40 yds. of Tank Sewer	Hampton Wick L. B.	do.	do.
*Paving Works	Lewisham Bd. of Wks.	do.	do.
Retort House, Railway Sidings, &c.	Sunderland Gas Co. ..	T. & C. Hawksley	do.
Wrought-iron Roofing, &c.	do.	do.	do.
Church, Craigie, Perth	.....	J. & G. Young (Perth)	do.
Shipcote Schools (for 1,000 Children)	Gateshead School Bd.	S. Piper	July 12
Warehouse, Aberlour Distillery, Banff	.....	A. & W. Reid	do.
Extension of Blaenllechan Schools	Llanwonno School Bd.	A. O. Evans	do.
Single Line of Tramway (950 yds.)	Tong Loc. Bd. (Yorks)	G. C. Ross	do.
*Granite Spalls	Twickenham Loc. Bd.	G. B. Laffan	do.
*Broken Flints	do.	do.	do.
Painting Belgrave Chapel, Leeds	Renovation Committee	.....	do.
*Chapel and School, Fishponds (Glos.)	.....	W. Paul	do.
Dormitory to School House, Needham Market	Theobald's Gram. Sch.	....	do.
Water Mains (1,200 yds.) Service Tanks, &c.	St. German's U.R.S.A.	*Official*	do
Greenhouse, Queen's Park	Manchester Corp.	do.	July 13
24-inch Compensating Gas Governor	Salford Corporation ..	do.	do.
*Timber	London CountyCouncil	do.	do.
Alterations to Workhouse	Birmingham Guardians	W. H. Ward	do.
Fifty-two Cottages, Ton-Pentre, Rhondda Valley	Bwllfa & Gelly Building Club	T. W. Rees	do.
Residence, Mether Cluny, Glearinnes	R. Skirving	G. Sutherland	do.
Painting, &c. Workhouse	Ashby - de - la - Zouch Guardians	J. W. Metcalf	July 14
Boiler House at Workhouse	do.	do.	do.
Re-building Premises, Pontypridd	Messrs. Jones & Co. ..	R. L. Griffiths	do.
*Stoneware Drain Pipes	Brighton Town Coun.	F. J. C. May	do.
Cast-iron Hydraulic Pipes	Glasgow Water Com...	Ellington & Woodall..	July 15
115 tons of Cast-iron Pipes, &c..	Ballycastle (co. Antrim) Union	.....	do.
Pulling-down Premises and Erecting Shops, &c.	Durham Co-op. Soc. ..	G. Ord	July 17
Board School, Upton, near Bitton	.....	W. L. Bernard	do.
School Buildings, &c. Gloucester	School Board	Medland & Son	do.
New Schools, Llanhilleth	School Board	A. Swash & J. Bain ..	do.
*Tarpaving, &c. Works	Bournemouth T. C. ..	F. W. Lacey	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Raising of Puddle Wall of Reservoirs, Duckinfield	Ashton - under - Lyne Waterworks Com. ..		
Asphalting Yards, &c. of Asylum, Wadsley	West Riding C.C.	*Official*	July 17
Wood Paving, Bridlington	Local Board	do.	do.
*Supply of Kerb	Bermondsey Vestry ..	do.	do.
Additional Floor in Goods Shed	Manchester Ship Canal Company	do.	July 18
*Pulling-down Houses	Acton Local Board....	do.	do.
Alterations, &c. to Board School	Darlington Sch. Bd. ..	Clark & Moscrop	do.
*Iron Railings, &c.	Whitechapel Union ..	B. J. Capell	do.
*Making-up Roads	Tottenham Local Bd.	J. E. Worth	do.
*Broken Granite	Brentford Local Board	J. H. Strachan	do.
Abattoirs, Cattle Sheds, &c. North Dean..	Halifax Industrial Soc. Lim.	Horsfall & Williams ..	July 19
*Painting, &c. Schools, Mitcham	Holborn Union	H. Saxon Snell	do.
*Isolation Hospital	Havant Hospital Dst. Board	G. C. V. Inkpen	do.
*Public School	Great Claction Sch. Bd.	T. H. Baker	do.
Church, Pant, Dowlais	.....	E. M. Bruce Vaughan	do.
School, &c. Llanbradach, near Caerphilly	.....	do.	do.
Alterations, Lodge Lane Baths	Liverpool Corporation	*Official*	do.
*Mortuary and other Works, Chartham	Kent Asylum Com. ..	Stenning & Jennings..	July 20
Isolation Hospital, &c. at Workhouse	Hereford Bd. of G.	W. W. Robinson	July 21
*Heating Apparatus for Turkish Baths	Southampton Corp. ..	W. B. G. Bennett	do.
*Repairs and Alterations to Pier	Gravesend Terrace Pier Co. Lim.	J. J. Robson	July 24
*Schools, &c. Winsford, Cheshire	Verdin Trust Fund ..	Woodhouse & Willoughby	July 25
*Removal of Old and Construction of New Weirs, &c.	Lea Valley Drainage Commissioners	Pollard & Tingle	do.
Water Supply and Drainage of Millbrook	St. German's U.R.S.A.	H. Masterton	July 26
Intermediate School, &c. Barry	.....	W. H. Dashwood Caple	do.
*Laying Pipe Sewers	Twickenham Loc. Bd.	G. B. Laffan	do.
*School With Laundry, &c.	Barry Intermediate S.	W. H. D. Caple	do.
*Making-up Street and Laying Concrete Flags	Walthamstow L.B. ..	G. W. Holmes	July 28
Warehouses, Richmond, Yorks	Marquis of Zetland....	Clark & Moscrop	No date
Alterations to Congregational Church, Cardiff	.....	Habershon & Fawckner	do.
Additions, Grand Hotel, Middlesbrough	James Calder	J. M. Bottomley	do.
Twelve Houses, Horsforth, Yorkshire	.....	J. P. Kay, & J. W. Twist	do.
Thirteen Houses, Horsforth, Yorkshire	.....	do.	do.
Chapel and Schools, Masborough	.....	T. Howdil	do.
*Officers' Quarters, Carlisle	War Department	*Official*	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	Rochester Corporation	2*l.* 10s.	July 18
*Engineer and Chief Surveyor	Tottenham Loc. Bd.	.....	July 25
*Inspector of Nuisances and Surveyor	Godstone U.R.S.A. ..	170*l.*	July 27

Those marked with an Asterisk (*) are advertised in this number. *Competition, p.* iv. *Contracts pp.* iv., vi., viii., *and* xx. *Public Appointments, p.* xviii.

Excluders for Doors, &c.—12,127, F. Bagley and W. Stabb, Check for Sliding Window-sashes for Ventilation.—12,134, B. Budding, Ventilator or Cowl.—12,154, R. Knights, Bent Plates used for Bridges, Floors, Buildings, &c.

JUNE 21.—12,185, W. Rooke, Ring Sash Lifts.—12,224, I. Winstanley, Taps.—12,227, T. Banks, Fire-proof Structures for Ceilings, Floors, and Roofs.—12,228, T. Banks, Metallic Sheathing or Coverings for Columns and other Structural parts of Buildings.—12,231, C. Van Alstine, Gauge, or Square for use in Constructing Stairs.—12,232, J. Mollett, Fireplaces or Stoves.

JUNE 22.—12,252, F. Caws, Glass Roofing.—12,274, H. Flood, Swivelling Doors.—12,320, A. Boult, Extensible Shutters, Doors, &c.—12,325, E. Nowell and others, Window Sashes.

JUNE 23.—12,373, O. Forester, Chimneys.—12,383, C. Webb, Antiseptic Automatic Dry Closet.

JUNE 24.—12,429, J. Veirs, Brick Kiln.—12,447, J. Reynolds, Fresh Air Inlet to be fixed at the sides of Sewer Manholes.—12,453, J. Glaser, Ventilating.

PROVISIONAL SPECIFICATIONS ACCEPTED.

7,999.—R. Jenkins, Machinery for use in Tunnelling.—9,493, A. Wilson and S. Broadbank, Composition for the Protection of Stone-work, or the like porous material against Damp.—9,897, H. Sherwin, Continuous Kilns.—9,979, J. Jones, Sash-fasteners.—10,030, W. Gibbs, Centre-plate Hinges or Hinge-joints.—10,113, W. Bartholomew, Locks for Water-closet Doors, &c.—10,297, G. Strong, Finger-plates for Doors.—10,330, W. Oates, and J. Green, Joint or Coupling for Earthenware Pipes.—10,587, T. Dent, Moulds for Casting Bricks, or Blocks, of Scoriæ or Slag.—10,607, G. Redfern, Machines for Bevelling Plate-glass.—10,772, G. Cutting, Ceiling Roses for Electric Connexions.—10,803, J. Russell, Ventilating and Increasing the Draught of Kilns, and of taking away the Steam during the process of Drying.—10,833, E. Podmore, Casement Stay.—11,095, W. Taylor, Ornamenting Wooden Surfaces.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

14,868, J. Day, Water-closets, more especially in closets for utilising waste water.—14,910, G. Rose, Ventilation.—15,018, E. Partridge, Scaffold and means for attaching same to a Ladder.—15,165, W. Wood and H. Hobden, Disinfecting Water-closets, Drains, Sewers, &c.—16,083, W. Cross and J. Cross, Door Locks and Latches.

5,453, W. Oddy, Alarum Door Bell.—5,588, W. Cook, Burglar Proof Sash Lock.—6,997, R. Scharf, Gauge to be used when building chimneys.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

JUNE 26.—By *C. V. Stevens:* F.g.r. of 36*l.* 10s., Elwood st., Highbury, reversion in 83 yrs., 870*l.*—By *Collier & Henderson:* L.g.r. of 22*l.* 1s., Compton-rd., Canonbury, u.t. 51 yrs., 415*l.*—By *Dann & Lucas:* F. house, flour mill, and 1a. 0r. 35p., South Darenth, Kent, 1,180*l.*—By *Furber, Price, & Furber;* L.g.r. of 11*l.*, Lambeth, u.t. 6 yrs., with reversion for 23 yrs. to 8, 9, Royal-st., g.r. 4*l.*, r. 63*l.*, 260*l.*; 10, 11, Royal-st., l.g.r. of 10*l.* 10s., u.t. 6 yrs., reversion 23 yrs., r. 32*l.*, g.r. 4*l.*; also a l.g.r. of 5*l.* 5s., on No. 10, u.t. 23 yrs., 170*l.*; 12, Royal-st., u.t. 29 yrs., g.r. 2*l.*, r. 36*l.*, 315*l.*; 15, 16, Royal-st., l.g.r. of 11*l.*, u.t. 6 yrs., with reversion for 23 yrs. to r. of 68*l.*, g.r. 3*l.*, 360*l.*—By *Weatherall & Green:* 13, 15, Eaton Rise, Ealing, u.t. 73 yrs., g.r. 16*l.* 16s., r. 101*l.*, 930*l.*

JUNE 27.—By *G. F. Francis:* 48, Gloucester-st., Belgravia, u.t. 37 yrs., g.r. 9*l.*, 670*l.*—By *Beard & Son:* No. 64, Westbourne Grove, f., r. 250*l.*, 5,475*l.*; 5, 6, Victor Parade, Kensal Green, u.t. 96 yrs., g.r. 18*l.*, r. 82*l.*, 690*l.*—By *Wagstaff & Warman:* 29, St. Mary's-rd., Canonbury, u.t. 52 yrs., no g.r., r. 72*l.*, 710*l.*—By *J. Jones & Son:* 3 to 11, Halley-st., Limehouse, f., 2,000*l.*—By *Walford & Wilshin:* 5, Franklin-rd., Penge, f., 580*l.*—By *Belton & Sons:* L.g.r. of 115*l.*, Blenheim-st., Oxford-st., u.t. 33 yrs., g.r. 35*l.*, 1,500*l.*; f. rental of 105*l.*, Kentish Town, u.t. 47 yrs., 2,150*l.*—By *Debenham, Tewson, & Co.:* "Heathfield" and 36 a. 0 r. 4 p., Keston, Kent, f., 4,900*l.*—By *Horncastle, Pember, & Co.:* 22, 24, Rowland Grove, Sydenham, u.t. 72 yrs., g.r. 10*l.*, r. 44*l.*, 210*l.*—By *Driver & Co.:* Part of the "Studley Domain," Warwickshire, f. house, factory, and plots of land 405*l.*—By *Rogers, Chapman, & Co.:* 3, Carlton-gardens, St. James's-pk., u.t. 33 yrs., g.r. 97*l.* 8s., 18,000*l.*

JUNE 28.—By *Driver & Perfect:* 46, 48, Tollington-pk., Finsbury-pk., f., r. 140*l.*, 1,530*l.*; a plot of f. land, Elthorne-rd., Holloway, 125*l.*—By *T. Young:* Four plots of f. land, Queen's-rd., Norbiton, 950*l.*—By *R. Furber:* A plot of f. land, Lyndhurst-rd., Hants, 2,300*l.*—By *D. Young:* 13, Bonham-rd., Brixton, u.t. 73 yrs., g.r. 7*l.* 10s., r. 47*l.*, 450*l.*; No. 206, Clapham-rd., u.t. 9 yrs., g.r. 11*l.* 11s., 130*l.*; 25, 27, 29, Bardolph-rd., Holloway, u.t. 73 yrs., g.r. 22*l.* 10s., r. 108*l.*, 935*l.*; 20 to 26 (even), Moreton-rd., Tottenham, u.t. 83 yrs., g.r. 14*l.*, 180*l.*—By *D. Smith, Son, & Oakley:* F. and c. farm, near Cambridge, 92 a. 0 r. 13 p., r. 140*l.*, 2,450*l.*; "The Manor of Bourney's," near St. Ives, 1,210*l.*; "Short Heath Farm," near Alton, 133 a. 0. r. 7 p., f., 2,500*l.*; an enclosure of f. land, 1 a. 2 r. 31 p., 30*l.*; enclosures of f. heath land, 19 a. 1 r. 27 p., 100*l.*; "Mill Farm," near Whittlesford Station, 51 a. 0 r. 27 p., r. 76*l.*, 1,200*l.*

JUNE 29.—By *Newbon & Co.:* 17 to 23 (odd), Bindon-rd., Shepherd's Bush, f., r. 130*l.*, 1,475*l.*; f.g.r. of 25*l.*, Wrotham-rd., Camden Town, reversion in 76 yrs., 610*l.*; 11, Osterley-rd., Stoke Newington, u.t. 71 yrs., g.r. 4*l.* 16s., r. 30*l.*, 310*l.*; 131, Barnsbury-rd., Islington, u.t. 11 yrs., g.r. 8*l.* 8s., r. 45*l.*, 92*l.*; 15, Portland-ter., Regent's-pk., u.t. 7 yrs., g.r. 10*l.*, 105*l.*—By *Stimson & Sons:* 8 to 14 (even), Harvey-rd., Camberwell, f., 950*l.*; 133, 135, Camden Grove North, f., 500*l.*; "The Commercial Arms," Commercial-rd., Peckham, u.t. 33 yrs., g.r. 6*l.* 10s., r. 31*l.* 10s., 240*l.*; 190, 192, Cator-st., u.t. 33 yrs., g.r. 6*l.*, 265*l.*; f.g.r. of 42*l.* 10s., Little Roke Cottages, Kenley, reversion in 97 yrs., 700*l.*, f.g.r. of 42*l.*, Alma-ter., Worcester-pk., ditto in 83 yrs., 740*l.*; f.g.r. of 36*l.* 15s., Church-rd., Buckhurst Hill, ditto in 78 yrs., 610*l.*; 79, 81, 85, 87, Tower Hamlets-rd., Forest Gate, u.t. 87 yrs., g.r. 14*l.*, 725*l.*; l. house, Larkhall-lane, Clapham, u.t. 69 yrs., g.r. 6*l.* 10s., 300*l.*—By *Farebrother, Ellis & Co.:* "The King's Head Hotel," Harrow, and 3¾ acres, f., 8,750*l.*; "Bruce Cottage" and "Greenbank," f., r. 110*l.*, 2,100*l.*; f.g.r. of 6*l.*, Byron Hill, reversion in 76 yrs., 130*l.*

JUNE 30.—By *Willatts & Charlton:* 9 to 12, Belle Vue Villas, Bowes-pk., f., r. 137*l.*, 1,845*l.*; three plots of f. land, Chingford, 107*l.*—By *Fuller & Fuller:* "Manchee House," High-rd., Tottenham, f., r. 60*l.*, 980*l.*—By *J. A. & W. Tharp:* Three f. cottages, Hopper's-rd., Palmers' Green, 270*l.*; 2, 11, 13, Hilcot-st., Haggerston, u.t. 10 yrs., g.r. 6*l.*, 90*l.*; f.g.r. of 11*l.*, Station-rd., Tottenham, reversion in 74 yrs., 220*l.*; 9, 10, Braemar-st., Bethnal Green, f., 275*l.*; 25, St. James's-rd., Victoria-pk., u.t. 64 yrs., g.r. 4*l.*, r. 32*l.*, 350*l.*—By *Norton, Trist, & Gilbert:* 6, Steward-st., City of London, f., area 950 ft., 550*l.*—By *Broad & Wiltshire:* The f. house "Na Bryn," Pepy's-rd., Raynes-pk., 600*l.*; residence "Claremont," f., 750*l.*; two plots of f. land, Pepy's-rd., 140*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	9/0/0 0/0/0
Teak, E.I.	load	9/0/0 15/0/0
Sequoia, U.S.ft.cu.		2/3 2/6
Ash, Canada	load	3 0/0 4/5/0
Birch, do.		2/10/0 3/10/0
Elm, do.		3/15/0 5/0/0
Fir, Dantsic, &c.		1/10/0 3/0/0
Oak, do.		3/5/0 5/10/0
Canada		5/15/0 6/15/0
Pine, Canada red		2/10/0 3/0/0
Do. Yellow		2/10/0 4/15/0
Lath, D'ntsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Deals, Finland		
2nd & 1st std	100	7/0/0 9/10/0
Do. 4th & 3rd	..	6/10/0 7/0/0
Do. Riga	....	6/10/0 8/0/0
St. Petersburg, 1st yellow	....	9/10/0 13/10/0
Do. 2nd yellow	..	7/10/0 8/10/0
Do. white	.....	8/0/0 10/0/0
Swedish	.....	7/10/0 15/10/0
White Sea	.....	7/10/0 16/0/0
Canada, Pine 1st		21/0/0 28/10/0
Do. do. 2nd	..	16/0/0 17/10/0
Do. do. 3rd	&c.	7/10/0 10/5/0
Do. Spruce, 1st		8/10/0 11/0/0
Do. do. 3rd & 2nd	.....	6/10/0 8/0/0
New Brunswick		6/0/0 13/0/0
Battens, all kinds		3/0/0 15/0/0
Flooring boards, sq., 1 in. prep.		
1st	.....	0/10/0 0/15/0
Do. 2nd	.....	0/8/0 0/12/0
Other qualities—		0/5/0 0/7/6
Cedar, Cuba	..ft.	/4 /4½
Honduras,	..&c	/4 /4½
Mahogany, Cuba		/4 /6½
St. Domingo, cargo av.		/4 1/6
Mexican do. do.		/3½ /4½
Tobasco do. do.		/3½ /6½
Honduras do.	..	/4½ /6
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio	.....	9/0/0 20/0/0
Bahia	.....	8/0/0 18/0/0
Satin, St. Domingo	..ft.	0/0/6 0/1/3
Porto Rico	.....	0/0/7 0/1/6

TIMBER (*continued*).

Walnut, Italian	..	0/0/3½ 0/0/7

METALS.

Iron—Pig, in Scotland	..ton	2/1/5 0/0/0
Bar, Welsh, in London	....	5/17/6 6/0/0
Do. do. at works in Wales	.....	5/7/6 5/10/0
Do. Staffordshire, in London	.....	6/0/0 6/10/0
COPPER—British, cake and ingot		47/0/0 47/10/0
Best selected	..	48/0/0 48/10/0
Sheets, strong	..	55/0/0 0/0/0
Chili, bars	.....	43/7/6 43/15/0
YELLOW METAL	lb	0/0/41 0/0/5
LEAD—Pig, Spanish	..ton	9/17/6 0/0/0
English com. brands	.....	10/0/0 10/5/0
Sheet, English, 6 lbs. per sq. ft. and upwards	....	11/0/0 0/0/0
Pipe	.....	11/10/0 0/0/0
ZINC—English sheet	..ton	21/10/0 0/0/0
Vieille Montagne	.....	22/0/0 0/0/0
TIN—Straits	.....	84/5/0 84/15/0
Australian	.....	85/5/0 85/15/0
English Ingots	..	87/0/0 87/10/0
Banca	.....	86/0/0 86/10/0
Billiton	.....	85/0/0 85/10/0

OILS.

Linseed	..... ton	20/17/6 21/0/0
Cocoanut, Cochin		29/0/0 0/0/0
Do. Ceylon	.....	27/0/0 27/10/0
Palm, Lagos	.....	26/0/0 0/0/0
Rapeseed, English pale	.....	24/15/0 25/0/0
Do. brown	.....	23/5/0 23/10/0
Cottonseed ref.	...	22/10/0 22/15/0
Oleine	.....	23/0/0 23/10/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined	..... barrel	5/10/0 22/0/0
TAR—Stockholm		0/18/6 0/0/0
Archangel	.....	0/12/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ALFRETON.—For the erection of a cemetery chapel, fencing, &c., Lea-brooks, for the Local Board. Mr. E. Houfton, Surveyor, Local Board Offices, Alfreton:—

W. E. Shaw	£1,725	Earnshaw Bros.	£1,495
H. Vickers	1,596		

ANDOVER.—For the supply and erection of an iron hospital, for the Urban Sanitary Committee. Mr. A. Purkess, Borough Surveyor, Town Hall, Andover:—

Annett & Son	£398 0 0	W. Harbrow	£366 17 6
D. Rowell & Co.	385 0 0	F. Beale, Andover (accepted)	339 10 0
T. Lynn	383 0 0		

BOVEY TRACEY (Devon).—For the erection of a farmhouse, Bradley Farm, for Mr. W. R. Hole. Mr. S. Segar, architect, Union-street, Newton Abbot:—

J. Winsor	£570 0 0	Silas Davie, Bovey Tracey*	£468 10 0
J. Turner	548 0 0		
Rundle Bros.	498 16 8		

* Accepted.

CAMBRIDGE.—For the erection of additional wing to the County Asylum, Fulbourn. Mr. R. R. Rowe, architect, Cambridge. Quantities not supplied:—

Ripper	£2,600 0	Kerridge & Shaw, Cambridge (accepted)	£2,378 0
Kidman	2,470 0	Lindsell	2,228 0
Thoday	2,397 0	Butt	2,181 10
Girling	2,305 0	Swann	1,918 0

CLAY CROSS.—For the construction of a service reservoir, &c., for the Water Company. Mr. W. H. Radford, engineer, Angel-row, Nottingham:—

Matthew Arundel	£1,096 4 0	T. Smart	£796 14 0
J. F. Price	1,073 6 6	Thos. Green	760 13 0
Fred Messom	925 0 0	H. Vickers	715 0 0
Townsend, Watson, & Gates	811 15 0	Clay Cross Co., Clay Cross*	700 0 0
W. E. Shaw	799 0 0		

* Accepted.

Ironwork.

Clay Cross Iron Co. (accepted) £272 0 0

CROYDON.—For stabling for thirteen horses, and two cottages, George-street, for Messrs. John Thrift & Sons. Mr. Alfred Broad, architect, 27, Dingwall-road, Croydon. Quantities supplied by the architect:—

Hanscomb & Smith	£1,390	D. W. Barker	£1,273
A. Bullock	1,379	E. J. Saunders	1,256
G. E. Bryan & Son	1,330	E. P. Bulled & Co.	1,217
Martin Taylor	1,285	W. Smith, Croydon*	1,100

* Accepted.

ECCLES (Lancs.).—For about 1,026 yards of granite paving, with bituminous asphalte joints, Liverpool-road, for the Corporation. Mr. A. C. Turley, Borough Engineer, Eccles:—

Worthington & Pownall	£513 6 7	Wm. Snape & Sons, Eccles*	£410 11 2
Robert Lomax	498 16 8		

[Borough Engineer's estimate, £487.]

* Accepted.

FALMOUTH.—For the erection of the Falmouth Hospital. Mr. H. C. Rogers, architect, 7, Carteret-street, Westminster. Quantities by Messrs. Stoner & Sons, London:—

A. E. Skinner	£2,068 10	Sampson Trehane, Liskeard, Cornwall*	2060 0
J. S. Kelway	2,066 0		

* Accepted.

GRIMSBY.—For the reconstruction of galleries to school buildings for the School Board—

B. W. Smith, Freeman-street £175 13 0

HARRINGTON (Cumberland).—For sewer extension, Copperas Hill, for the Local Board. Mr. Jos. Shackley, Surveyor, Board Room, Temperance Institute, Harrington, Cumberland:—

S. McWhinney	£138 10	R. Cousins, Whitehaven*	£105 0
H. Killip	111 0		

* Accepted.

HONITON.—For the re-construction of the drainage of the Union Workhouse, for the Board of Guardians. Mr. Edward Geo. Warren, architect, Post-office Chambers, Exeter:—

F. Williams	£569 0 0	F. Grace	£493 6 7
N. Pratt	559 0 0	T. Turner	487 5 6
W. Granger	530 0 0	W. Berry, Honiton*	435 15 0
A. Phillips	506 12 0		

* Accepted conditionally.

ILKLEY.—For the execution of street improvement works, Grove and Queen's-roads, for the Local Board. Mr. M. Hainsworth, junr., Surveyor, 14, The Grove, Ilkley. Quantities by Surveyor:—

Thomas Lane	£5,239 10 1	George Walker	£3,520 9 5
John Wood & Son	4,875 10 0	William Tamish	3,390 0 0
David Speight	4,867 11 3	Walter Barraud Bradford*	3,308 5 7
William Chew	4,673 16 1		
James Taylor	4,103 8 0		

* Accepted.

For Asphalting.

Asphaltic Limestone Concrete Co.	£689 7 8	North of England Asphalte Co.	£620 15 0
William Firth	673 6 6	Richard Richardson	590 0 0
John Cook	630 15 10		

IPSWICH.—For the supply and erection of iron fencing to enclose extensions of the present cemetery, for the Burial Board. Mr. A. Sandbach, surveyor, Cornhill Chambers, Thoro'fare, Ipswich:—

	Per yard.		Per yard.
A. Wrinch	£0 14 3	Martin & Newby	£0 11 11
Girling & Coe	0 13 0	Corkswedge & Co., Ipswich (accepted)	0 10 6
G. Abbott	0 12 8		

LONDON.—For the erection of new buildings and additions to the Stepney Union Workhouse, Bromley-by-Bow, for the Board of Guardians of the Stepney Union. Mr. J. E. Holman, Architect. Quantities supplied by Mr. A. J. Turner:—

Nightingale	£12,978	Perry & Co.	£11,456
Holland	12,590	Johnson	11,277
Chessum	12,450	J. O. Richardson	11,129
Shurmur	12,357	Coxhead	10,823
Edmunds	11,945	White & Sons (accepted)	10,050

LONDON.—For the North-Western District Post Office extension:—

Wall & Co.	£5,358 0	Longmire & Co.	£4,868 0
Belham & Co.	5,345 0	Ballard	4,707 0
Chessum & Son	5,119 0	Mellor	4,692 0
Nightingale	4,976 0	J. O. Richardson	4,670 0
Newman, Ltd.	4,968 10	Lidstone	4,610 0
Allen & Son	4,965 0	Martin & Co.*	4,353 0

* Accepted.

LONDON.—For additions to St. Olave's Infirmary, Rotherhithe for the Guardians of St. Olave's Union. Messrs. Newman & Newman, architects. No quantities:—

Bullers	£2,080	Balaam	£1,730
J. O. Richardson	1,960	Lilley*	1,597
Holloway	1,860		

* Accepted.

LONDON.—For rebuilding the premises of the City Association, 4, Burgon-street, destroyed by the late fire. Mr. C. Innes, architect, 27, Queen-street, City:—

J. Lidstone & Sons	£2,460	Patman & Fotheringham	£2,091
J. Greenwood	2,420	Spencer & Co.	2,025
Hall, Beddall & Co.	2,300	H. J. Williams	1,986
Clarke & Bracey	2,273	Balaam Bros.	1,855

LONDON.—For the erection of a school on the site in Elizabeth-street, North Woolwich, to provide accommodation for 780 children, and a schoolkeeper's house with a room underneath, for the School Board for London. Mr. T. J. Bailey, Architect:—

	For brick-work in cement	*add*	For brick-work of house in cement	*add.*
E. Lawrance & Sons	£17,699	£225	£27	
S. & W. Pattinson	17,527	336	39	
H. Lovatt	17,202	308	36	
D. Charteris	17,106	309	35	
Hart Bros	16,890	294	35	
J. & M. Patrick	16,776	281	33	
Stimpson & Co.	16,597	296	37	
Kirk & Randall, Woolwich*	15,643	280	34	

* Recommended by the Works Committee for acceptance.

LONDON.—For carrying out various structural improvements to the Trinity-place School, Hoxton, for the School Board for London. Mr. T. J. Bailey, Architect:—

Staines & Son	£3,117	J. Grover & Sons	£2,451
G. S. S. Williams & Son	2,633	McCormick & Sons, 34, Canonbury-road, N.*	2,395
Killby & Gayford	2,479		

* Recommended by the Works Committee for acceptance.

LONDON.—For enlarging the Plassy-road School, Catford, by 395 places, and for other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

J. Longley & Co.	£8,495 0 0	Kirk & Randall	£6,945 0 0
J. Shillitoe & Son	7,660 0 0	J. & M. Patrick	6,818 6 0
E. Proctor	7,518 10 0	J. Smith & Sons, S. Norwood*	6,777 0 0
C. Cox	7,255 0 0		
Co-operative Builders, Ltd.	7,177 0 0		

* Recommended for acceptance by the Works Committee.

LONDON.—For the provision of a school-keeper's house, a centre for manual training, and also a laundry centre in connexion with the Bonner-street School, Bethnal Green, for the School Board for London. Mr. T. J. Bailey, Architect:—

G. S. S. Williams & Son	£2,067	C. Cox	£1,891
E. Lawrance & Sons	2,032	E. Houghton & Sons, 74, Lancaster-road, Stroud-green*	1,772
J. Grover & Sons	1,946		
J. Marsland	1,840		

* Recommended by the Works Committee for acceptance.

LONDON.—For providing and fixing heating apparatus on the low pressure hot water system for the enlargement of each of the undermentioned Schools now in course of erection, for the School Board for London. Mr. T. J. Bailey, Architect:—

Gravel-lane, City.			
Wontner-Smith, Gray, & Co.	£498 10	J. F. Clarke & Sons	£399 0
G. Davis	485 0	Russell & Co.	379 10
T. Potter & Sons	482 0	Wenham & Waters	379 0
Z. D. Berry & Sons	436 0	Purcell & Nobbs, Fitzroy-square*	373 0
Maguire & Son	433 12		
"Alma" School (Pupil Teachers' Centre), Southwark.			
J. Grundy	£497 0	W. G. Cannon	£250 0
Wontner-Smith, Gray, & Co.	303 10	J. & F. May	239 0
Comyn, Ching, & Co.	284 10	J. F. Clarke & Sons, 49, Moorgate-street, E.C.*	238 0
Z. D. Berry & Sons	260 0		

* Recommended by the Works Committee for acceptance.

LONDON.—For erecting new offices for the infants' department of the Westmoreland-road School, Walworth, and for other work, for the School Board for London. Mr. T. J. Bailey, Architect:—

G. P. Kent	£1,689	Taylor & Son	£1,399
W. Hammond	1,596	J. Smith & Sons	1,385
Lathey Bros.	1,577	E. Triggs, 95, The Chase, Clapham*	1,285
Whitehead & Co.	1,550		
A. Morgan	1,448		

* Recommended for acceptance by the Works Committee.

LONDON.—For erecting a school-keeper's house and laundry centre on the Lavender-hill site, Battersea, for the School Board for London. Mr. T. J. Bailey, Architect:—

S. & W. Pattinson	£1,808 0	Holliday & Greenwood	£1,603 0
D. Charteris	1,765 0	G. Marsland	1,542 0
Holloway Bros.	1,742 0	Stimpson & Co., 78, Brompton-road, W.*	1,450 0
Lathey Bros.	1,634 0		
W. H. Gaze	1,623 18		

* Recommended by the Works Committee for acceptance

LONDON.—For warming on the low-pressure hot-water system the boys' and girls' departments of the main building of the school in Plumstead-road, for the School Board for London:—

Wilson Engineering Co.	£540	Fraser & Fraser	£302
T. Potter & Sons	410	Z. D. Berry & Sons	291
W. G. Cannon	363	J. F. Clarke & Sons, 49, Moorgate-street*	289
J. & F. May	335		

* Recommended by the Works Committee for acceptance.

LONDON.—For refitting the troughs of the water-closets in connexion with the Shaftesbury Training Ship at Grays, and also for providing new earthenware urinals on the sleeping and mess decks, for the School Board for London:—

Calnan & Co.	£396 0	J. Edmead, Grays*	£225 10

* Recommended by the Works Committee for acceptance.

LONDON.—For the construction of four bridges at the Isle of Dogs, for the London County Council. Mr. A. R. Binnie, Engineer:—

Teeside Iron and Engine Works Company	£63,356 0 7
Dalmarnock Ironworks Company	62,756 10 0
A. Thorne	60,103 0 0
Thames Ironworks Company	53,391 10 0

LONDON.—For erecting new stabling for Messrs. Jones Bros., Holloway. Mr. G. Harold Elphick, architect, Broad-street House, Old Broad-street:—

Lascelles	£1,779	Macfarlane (accepted)	£1,267

LONDON.—For oak panelling and west screen at the Merchant Taylors' Hall, E.C., for the Merchant Taylors' Company. Mr. W. Hilton Nash, architect, 5, Adelaide-place, London Bridge. Quantities by Mr. R. Fabian Russell:—

Farmer & Brindley	£2,297	G. Trollope & Sons	£1,585
Simpson & Sons	1,705	Colls & Sons	1,580
Geo. Hammer & Co.	1,700	Dove Brothers (accepted)	1,445

LONDON.—For the erection of kitchen, stores, &c., at Paddington Workhouse, Harrow-road, for the Guardians of the Poor of Paddington. Messrs. New & Son, architects, 62, George-street, Portman-square, W. Quantities supplied:—

Chessum & Sons	£3,430	J. O. Richardson	£3,120
Oldrey & Co.	3,397	Tennant & Co.	3,103
Scrivener & Co.	3,282	F. Mark (accepted)	2,990
Williams & Richards	3,210	Battley, Sons, & Holness	2,979
Burge	3,190	Ballard	2,847
Holliday & Greenwood	3,127		

LONDON.—For painting and repairs, &c., at the Paddington Infirmary, Harrow-road, for the Guardians of the Poor of Paddington. Messrs. New & Son, architects, 62, George-street, Portman-square, W.:—

Reliance Co-operative Painters' Society	£2016 9	Phillips & Son	£998 0
H. Cooke	1,747 6	W. Flower	985 0
Tennant & Co.	1,265 0	H. King	972 0
Barber & Co.	1,150 0	G. Foxley (accepted)	900 0
Marler & Bennett	1,130 0	J. Riley	856 12
Jones & Co.	1,108 0	W. Chappell	859 0

LONDON.—For the erection of a chancel, morning vestries, and other works to the existing fabric of St. Michael's Church, Camden Town. Messrs. Bodley & Garner, architects, Gray's Inn; Messrs. Northcroft, Son, & Neighbour, surveyors, Charing Cross, London:—

Smith & Sons	£7,063	Stephens, Bastow, & Co., Ltd., Bristol*	£5,975
Wheeler Bros.	6,882		
Rudd & Sons	6,300		

* Accepted.

LONDON.—For exterior painting, &c., of the Whittington Schools, for the School Board for London. Mr. T. J. Bailey, Architect:—

Heatley & Hannan	£225	Williams & Son	£135
Cox	211	Marchant & Hirst	129
Kirby & Chase	173	Houghton & Son	115
Taylor & Son	158	Stevens Bros.	98

LONDON.—For exterior painting, &c., Winchester-street Schools, for the School Board for London. Mr. T. J. Bailey, Architect:—

Kirby & Chase	£386	Dearing & Son	£253
W. H. Stephens	300	Stevens Bros.	253
Williams & Son	298	Marchant & Hirst	246
Laurance & Son	280		

LONDON.—For interior cleaning, &c., St. John's-lane School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Cruwys	£140 0 0	Kirby & Chase	£97 0 0
Williams & Son	121 0 0	Marchant & Hirst	84 0 0
Johnson & Co.	114 7 6		

LONDON.—For exterior painting, &c., of Bonner-street School for the School Board for London. Mr. T. J. Bailey, Architect:—

Britton	£204	Knight & Son	£168
Barker	179	Marchant & Hirst	139
Vigor & Co.	171	Corfield	119

LONDON.—For exterior painting, &c., of Olga-street School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Knight & Son	£265 0	Roby	£243 0
Marchant & Hirst	249 10	Britton	217 0
Vigor & Co.	248 10		

LONDON.—For interior cleaning, &c., of Burghley-road School for the School Board for London. Mr. T. J. Bailey, Architect:—

Williams & Sons	£207	Marchant & Hirst	£243
Heatley & Hannan	258		

LUTON.—For alteration and addition to premises, Market Hill, to convert same into a Conservative and Constitutional Club. Mr. W. J. Pearson, architect, Market Hill, Luton:—

Buckingham	£637 0	Smart (accepted)	£595 0
Attwood	592 10	Kingham (too late)	495 0
Heating.—T. Balmforth & Co.			£45 0 0

[All of Luton.]

LUTON.—For the erection of new residence and laundry, Dunstable-road, for Mrs. S. E. Bent. Mr. W. J. Pearson, architect, Market-hill, Luton:—

Parkins	£1,745 0	Dunham	£1,515 0
Saunders	1,695 0	Smart	1,480 0
Taylor	1,592 0	Pryer (accepted)	1,330 0
Neville Bros.	1,531 10		

[All of Luton.]

MANCHESTER.—For the construction of brick or cast-iron pipe-sewers, &c., Moss Side, for the Local Board. Mr. John Bowden, engineer, 14, Ridgefield, Manchester:—

Robert Lomax	£39,865 19 4	James Nuttall	£31,822 0 0
Perkins, Graham, & Co., Ltd.	36,534 18 0	George Bell	31,262 0 0
S. & J. Bentley	34,111 0 0	George Bozson	30,500 0 0
Geo. W. Naylor	32,584 10 1	James Dickson	30,246 16 4
		Abram Kellett	29,090 0 0

MILBORNE PORT (Dorset).—For sewerage extension (472 yards), irrigation, &c., for the Wincanton Rural Sanitary Authority. Mr. A. P. J. Cotterell, engineer, 7, Baldwin-street, Bristol:—

W. Thomas	£768 15 1	G. Pitman, Milborne Port*	£540 15 0
Love & Waite	747 0 0		

* Accepted.

PONTYPRIDD.—For the erection of sixty-four houses on the Tymawr Estate, Hopkinstown, for the Tymawr Building Club. Mr. F. Gibson, architect, Market-square, Pontypridd:—

Chas. Jenkins & Son	£14,112	F. A. Pollard	£10,880
David Evans	12,480	W. Davies	10,592
D. J. Davies	11,840	Williams & James, Pontypridd (Accepted)	10,224
David Richards	11,840		
J. U. Parfitt	10,880		

PONTYPRIDD.—For the erection of the New Inn Hotel, Pontypridd. E. M. Bruce Vaughan, architect, Cardiff:—

Stephens, Bastow, & Co.	£6,899	Jno. Rees	£6,474
C. Jenkins & Sons	6,850	Hatherly & Carr	6,387
D. Griffiths	6,692	E. F. Richards	6,274
D. Davies	6,625	W. Thomas & Co.	6,132
D. C. Jones & Co.	6,547	Watkin Williams*	5,692
D. J. Davies	6,530		

* Accepted.

SHEFFIELD.—For the erection of new saleshops and offices in Pond Hill and Sheaf-street, Sheffield, for Messrs. George Senior & Sons. Mr. W. H. Lancashire, architect, 11, East Parade, Sheffield. Quantities by the architect:—

Longden & Son	£3,737 0	Powell & Son	£3,428 0
W. & A. Forsdike	3,650 0	George Webster	3,402 3
Ash, Son, & Biggin	3,570 0	W. Ives & Co.	3,350 0
Mastin & Son	3,438 0	Chambers & Sons*	3,220 0

*Accepted.

STOCKPORT.—For excavating, sewering, and making-up Lloyd-street, Churchill-street, Ellen-street, Denbigh-street, Morton-street, and Viaduct-street, within the borough, for the Corporation. Mr. Jno. Atkinson, Borough Surveyor, St Petersgate, Stockport:—

Worthington & Pownall	£3,089 3 2		
I. Broadhurst	2,875 7 7		
P. D. & S. D. Hayes, Turncroft-lane, Stockport (accepted)	2,789 15 2		

TOTNES.—For laying new 5-in. or 6-in. cast-iron water main, and supplying hydrants, valves, &c., for the Town Council. Mr. W. F. Tollit, Surveyor, Gate-house, Totnes, Devon:—

	5-in. main.	6-in. main.
Willcocks	£459 0 0	553 0 0
Pike	411 14 0	476 14 0
Best	420 0 0	470 0 0
Nickells	380 5 0	450 6 0
Shaddock	376 0 0	440 0 0
Sellwood	357 0 0	427 0 0
Hawkings & Best, Teignmouth	324 10 0	400 0 0*
Surveyor's estimates	370 0 0	420 0

* Accepted.

TOTTENHAM.—For alterations, &c., at the "Plough," High-road, Tottenham; for Mr. Dunham. Mr. J. E. Pinder, architect, Bridge House, Tottenham:—

Goodall	£475 0	Knight & Son, Tottenham (accepted)	£435
Voller	457 17		

WAKEFIELD.—Accepted for the erection of six stone houses Junction-street, Horbury. Messrs. Hart & Dawson, architects, 21, King-street, Wakefield:—

Excavator, Bricklayer, and Mason.—Henry Fallas, Horbury £609 10 0
Slater.—George Fawcett, Dewsbury 49 0 0
Plasterer.—James Exley, Horbury 50 0 0
Joiner.—S. H. Clarke, Horbury 208 0 0
Plumber.—Henry Blackburn, Dewsbury 40 0 0
Painter.—W. A. Littlewood, Horbury 12 10 0
Total £969 0 0

WANSTEAD.—For additions to "The Grange," Cambridge-road, Wanstead, Essex. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

E. W. Beech	£196	Osborn & Sons	£194
J. Jolliffe	195	W. Mundy (accepted)	189

WOKING.—For shops and offices on the Station Estate, for Messrs. Saul Bros. Messrs. Homer & Ridler, architects, 35, Bucklersbury, E.C. Mr. G. Silvester, surveyor, 46, Strand:—

J. Whitburn	£1,810	Larke & Son	£1,494
Harris & Son	1,772	A. Gale (accepted)	1,150
Ingram & Sons	1,723		

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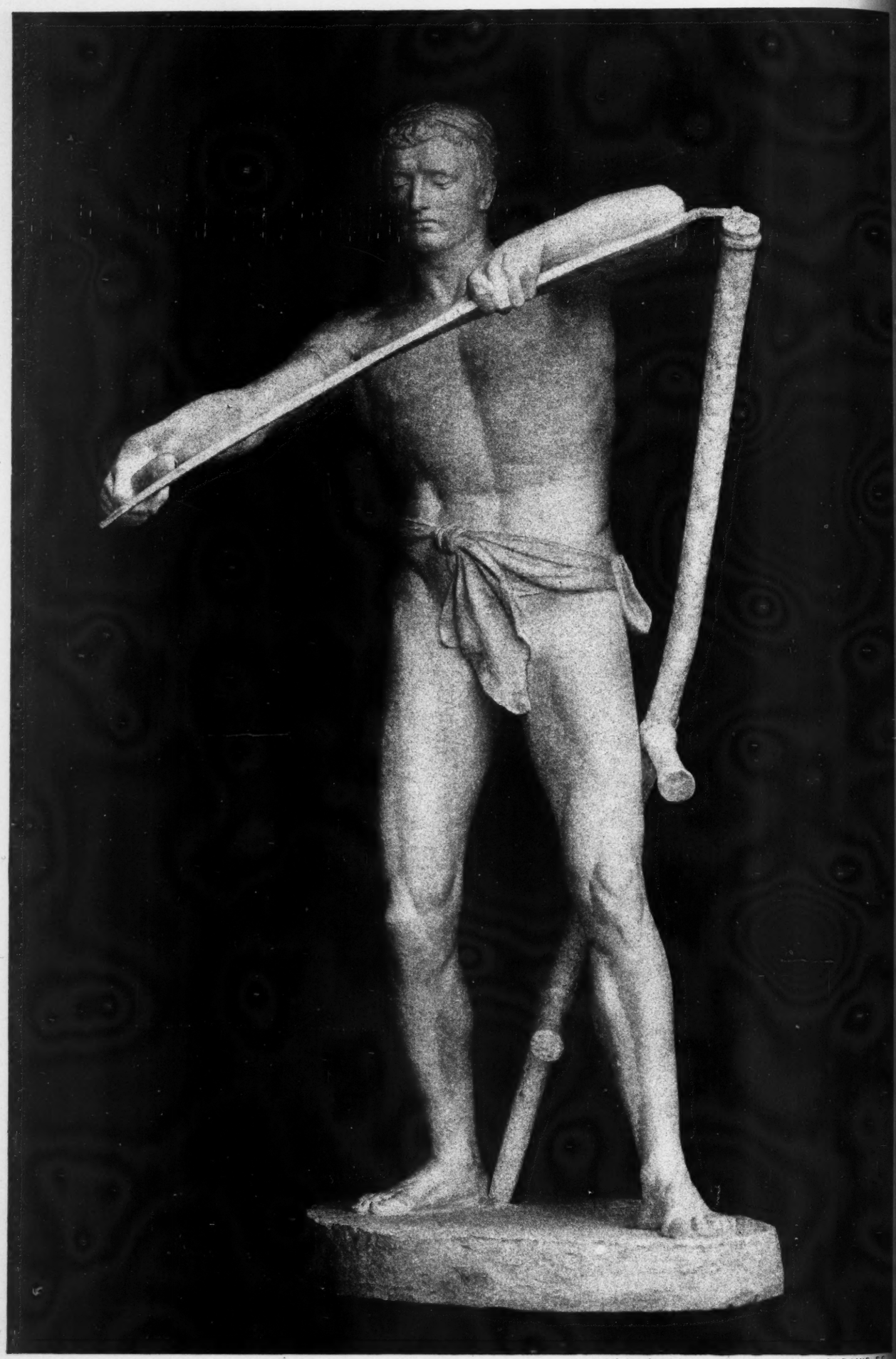

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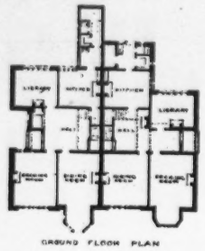
"A SCYTHEMAN."—Mr. E. Roscoe Mullins, Sculptor.

New Gallery Exhibition, 1893.



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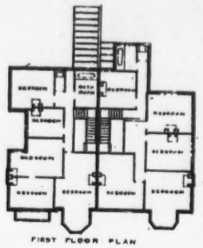

FIRST FLOOR PLAN

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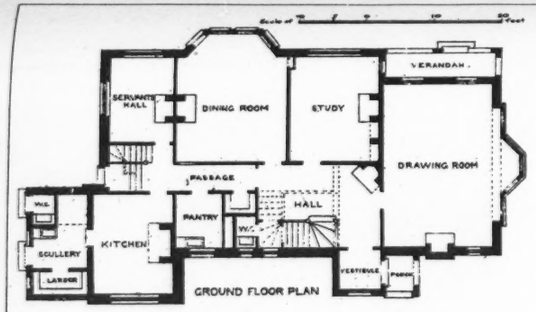
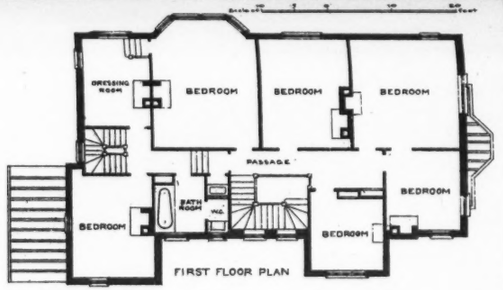
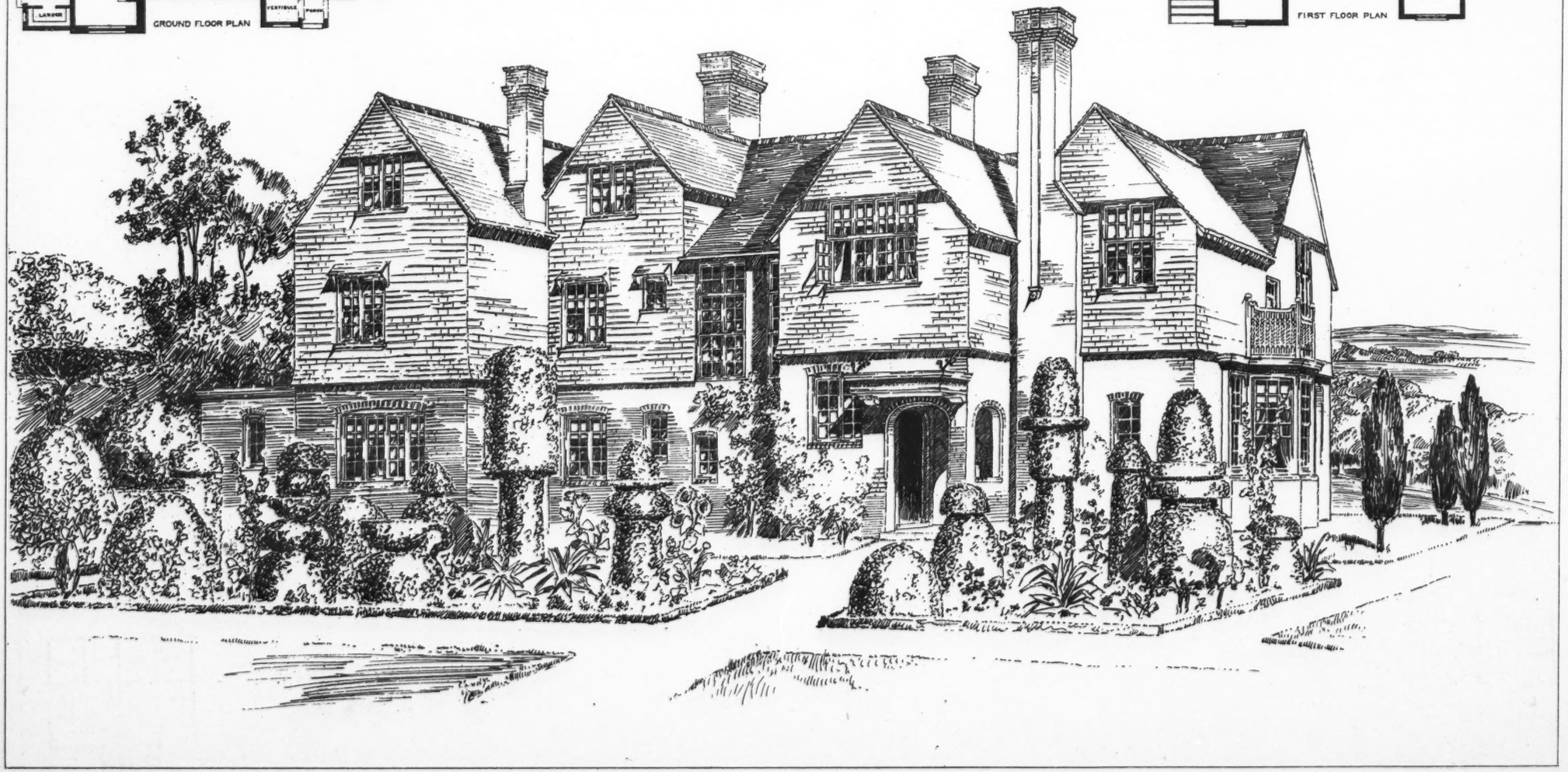
PAIR OF HOUSES AT BURNT ASH HILL, LEE.—Mr. R. A. Briggs, F.R.I.B.A., Architect.







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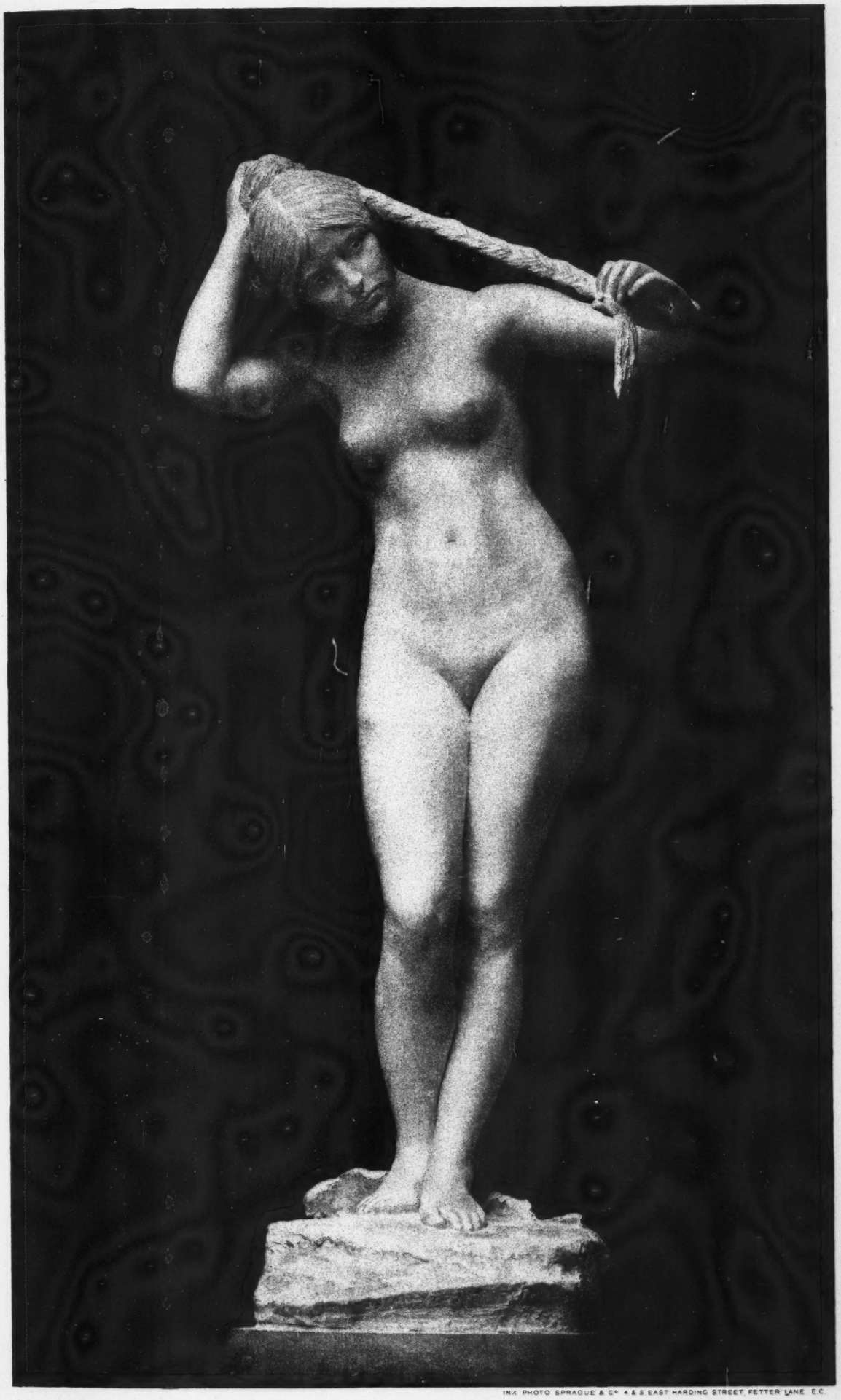
HOUSE AT MAIDENHEAD.—Mr. R. A. Briggs, F.R.I.B.A., Architect.



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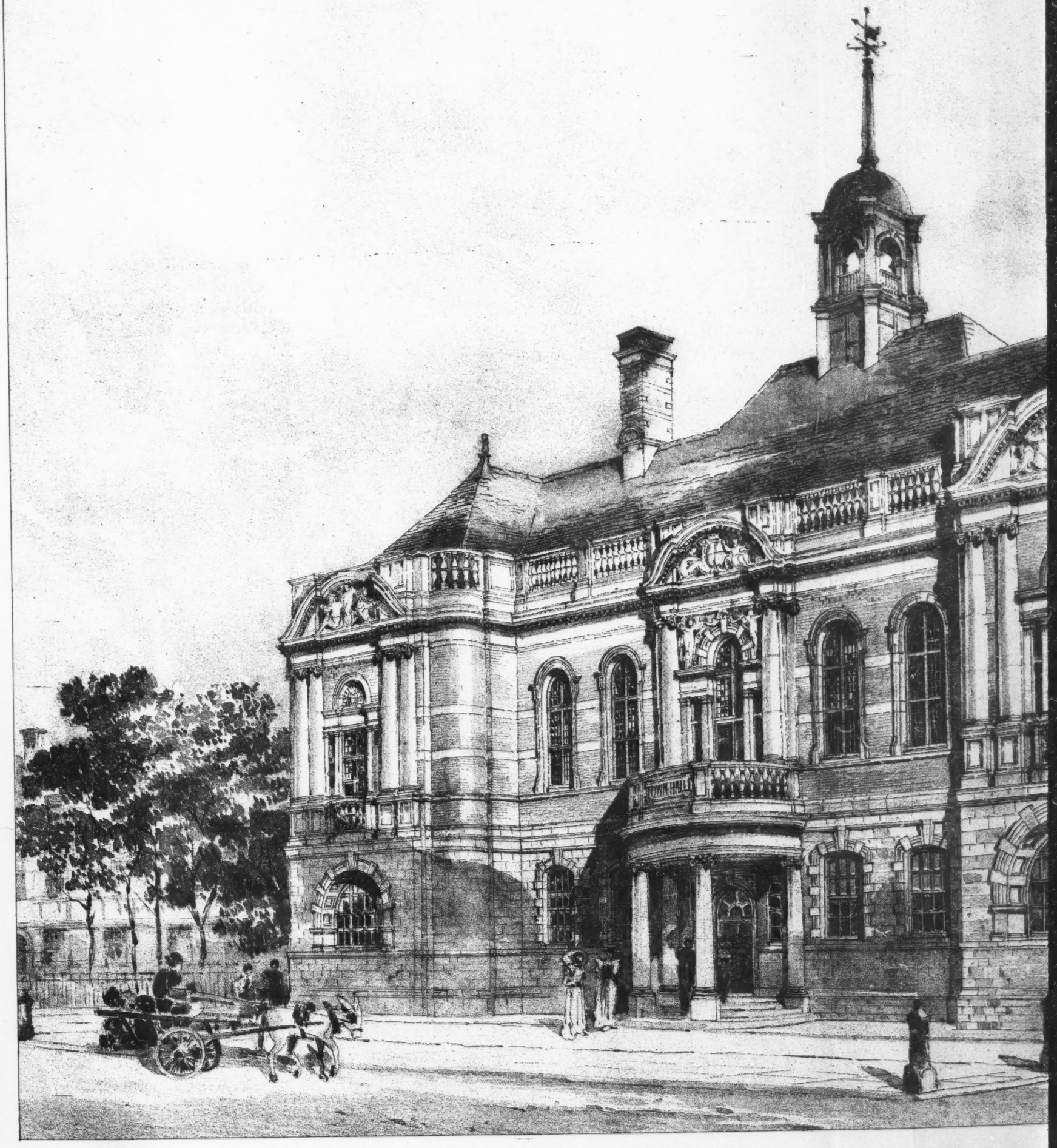
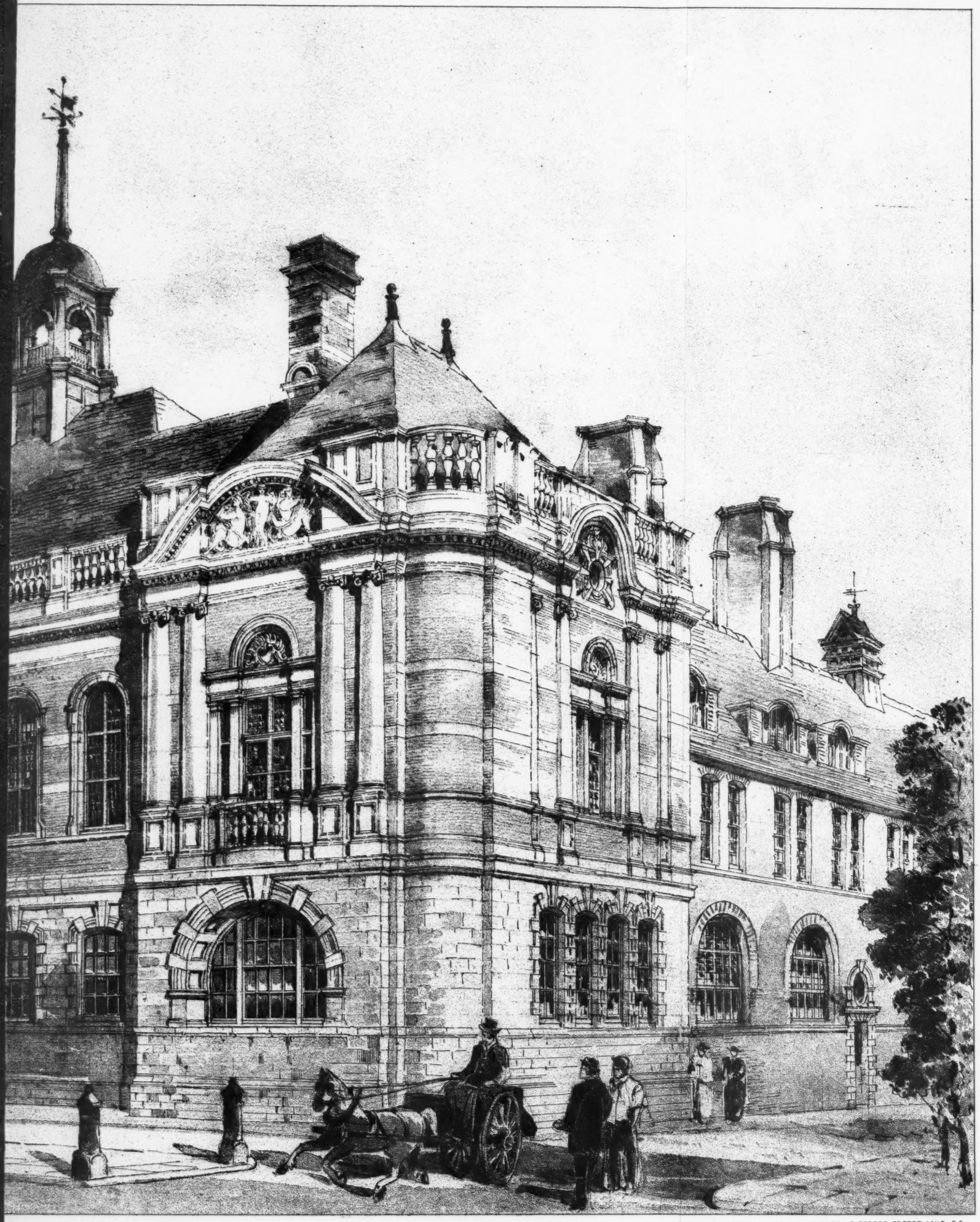
"GIRL BINDING HER HAIR."—Mr. W. Goscombe John, Sculptor.

Royal Academy Exhibition, 1893.



BATTERSEA TOWN HALL.—Mr. E. W. Mountford, F.R.I

Royal Academy Exhibition, 1893.



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L.—Mr. E. W. Mountford, F.R.I.B.A., Architect

LEEDS SCHOOL OF MEDICINE, MOUNT PLEASANT, LEEDS.—Mr. W. H.

Royal Academy Exhibition, 1893.

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LEASANT, LEEDS.—Mr. W. H. Thorp, F.R.I.B.A., Architect.